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ABSTRACT

This manual makes accessible several widely used instruments for measuring perceptions of psychosocial characteristics of classroom environment among school students and teachers. Background information, scoring procedures, validation data, and preferred and short forms of the Learning Environment Inventory, My Class Inventory, Classroom Environment Scale, and Individualized Classroom Environment Questionnaire are presented. An overview is given of recent science education research involving use of these instruments (e.g., studies of outcome-environment relationships, curriculum evaluations, research into differences between students and teachers in their perceptions of actual and preferred classroom environment, person-environment fit investigations of whether students achieve more in their preferred environment, and use of environment assessment as a practical basis for guiding improvements in classrooms). (Author/PN)

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1.0 ADDITIONAL INFORMATION

This workshop manual draws some of its content from the following recent test manuals:

Fraser, B.J., Anderson, G.J. & Walberg, H.J. Assessment of Learning Environments: Manual for Learning Environment Inventory (LEI) and My Class Inventory (MCI), Third version, 1982.

Fraser, B.J. Individualized Classroom Environment Questionnaire: Handbook, 1982.

A complimentary copy of either of these two manuals may be requested from Barry J. Fraser, Faculty of Education, Western Australian Institute of Technology, Bentley, 6102, Australia.

2.0 INTRODUCTION AND BACKGROUND

Although there is an abundance of tests which measure student outcomes, very few instruments assess the nature of classroom learning environments. Furthermore, the classroom environment instruments that do exist are not always readily accessible to potential users. Consequently, the purpose of this workshop manual is to make accessible several widely used instruments for measuring perceptions of psychosocial characteristics of classroom environment among school students and teachers. The three main instruments considered here are the Individualized Classroom Environment Questionnaire (ICEQ), the Learning Environment Inventory (LEI) together with a simplified version of the LEI called My Class Inventory (MCI), and the Classroom Environment Scale (CES).

Each instrument described is suitable for convenient group administration and can be scored either by hand or computer. All scales have been carefully developed, extensively field tested among science students, used widely in research, and shown to be reliable. Uses of classroom environment instruments include providing teachers with feedback about their classrooms, evaluating educational innovations, investigating the effects of classroom environment on student learning, exploring differences between student and teacher perceptions of actual or preferred environment, and investigating whether students achieve better when in their preferred classroom environment.

Recent publications dealing with perceptions of psychosocial characteristics of classroom learning environment include two books (Moos, 1979; Walberg, 1979), a monograph (Fraser, 1981a), a meta-analysis (Haertel, Walberg & Haertel, 1981), and several reviews (Fraser, 1981b; Walberg & Haertel, 1980) including one concentrating exclusively on science education (Fraser & Walberg, 1981). There are several arguments which have been

advanced by Walberg and Haertel (1980) to justify the use of student perceptual measures in preference to classroom interaction techniques. First, paper-and-pencil perceptual measures are more economical than classroom interaction techniques which involve the expense of trained outside observers. Second, perceptual measures are based on students' experiences over many lessons, while interaction data usually are restricted to a very small number of lessons. Third, perceptual measures involve the pooled judgments of all students in a class, whereas interaction techniques typically involve only a single observer. Fourth, students' perceptions, because they are the determinants of student behavior more so that the real situation, can be more important then observed behaviors.

3.0 INDIVIDUALIZED CLASSROOM ENVIRONMENT QUESTIONNAIRE (ICEQ)

The ICEQ has several distinguishing features. First, it assesses those dimensions (namely, Personalization, Participation, Independence, Investigation, and Differentiation) which distinguish individualized classrooms from conventional ones. Second, in addition to measuring actual classroom environment, it has a form which assesses preferred classroom environment. Third, it can be used with either students or teachers. Fourth, the instrument has a short form which can be used to provide a rapid, more economical measure of classroom environment.

3.1 Development and Description of ICEQ

The initial development of the long form ICEQ, which is discussed in detail in Rentoul & Fraser (1979) and Fraser (1980), was guided by several criteria. First, dimensions chosen characterized the classroom learning environment described in recent individualized curriculum materials and in the literature of individualized education, including open and inquiry-based classrooms (Rathbone, 1971; Walberg & Thomas, 1972; Weisgerber, 1971). Second, extensive interviewing of teachers and secondary school students ensured that the ICEQ's dimensions and individual items were considered salient by teachers and students. Third, in order to achieve economy in answering and processing, the ICEQ was designed to have a relatively small number of reliable scales, each containing a fairly small number of items.

Items were written and subsequently modified after receiving reactions sought from selected experts, teachers, and junior high school students. The resulting preliminary version was field tested with several samples of students and teachers in the Sydney metropolitan area. Data were subjected to item analyses in order to identify items whose removal would enhance each scale's internal consistency (the extent to which items in the same scale measure the same dimensions) and discriminant validity (the extent to which a scale measures a unique dimension not covered by the other scales in the instrument).

The final version of the ICEQ's long form contains 50 items altogether, with an equal number of items belonging to each of the five scales. Each item is responded to on a five-point scale with the

alternatives of Almost Never, Seldom, Sometimes, Often and Very Often. The scoring direction is reversed for many of the items. A complete copy of the long form of the ICEQ is included on pages 1 to 4 in the Appendix.

The directions for answering the actual form of the ICEQ are given on page 1 of the Appendix, while the directions for answering the preferred form are printed on page 2 of the Appendix. The same set of items (see pages 3 and 4 of the Appendix) are used in either the actual form or the preferred form. In order to reduce printing costs and to facilitate easy hand scoring, the actual form of the ICEQ has the separate one-page Answer Sheet shown on page 5 of the Appendix; an almost identical Answer Sheet is used with the preferred form. The directions for answering are worded in such a way as to be suitable for secondary school students. Although these directions may also be used with teachers, those involved in using the ICEQ with teachers may prefer to replace these instructions with the briefer instructions included on page 6 in the Appendix which are more suited to adult respondents.

3.2 Scoring and Scale Allocation

The Answer Sheet for the long form of the ICEQ has two features which facilitate ready hand scoring. First, underlining of item numbers identifies those items which need to be scored in the reverse direction. Second, items from the five scales are arranged in cyclic order so that all items from a particular scale are found in the same position in each block of five items. For example, the first item in every block belongs to the Personalization scale.

The ICEQ's Answer Sheet (see page 5 of Appendix) can be scored using the following simple method of hand scoring:

(a) Score each item and record the item score. Items not underlined are scored by allocating the number circled (i.e., by scoring 1, 2, 3, 4, and 5, respectively, for the responses Almost Never, Seldom, Sometimes, Often, and Very Often). Underlined items are scored in the reverse manner (i.e., by allocating 5, 4, 3, 2, and 1, respectively, for the responses Almost Never, Seldom, Sometimes, Often, and Very Often). Omitted or invalidly answered items are given a score of 3.

(b) Add the 10 item scores, one from each block of five items, for each scale to obtain the total score for each ICEQ scale. The first item in each block measures Personalization (Pe), the second item measures Participation (Pa), the third item measures Independence (In), the fourth item measures Investigation (Iv), and the last item in each block measures Differentiation (D). For example, the total score for Personalization scale is obtained by adding the individual scores for Items 1, 11, 21, 31, and 41 (and this sub-total can be recorded in the space next to Pe in the Teacher Use Only column) and those for Items 6, 16, 26, 36, and 46 (whose sub-total can be recorded in the space in the Teacher Use Only column). Scale totals can be recorded in the spaces provided at the bottom of the Answer Sheet.

Page 27 of the Appendix illustrates how these hand scoring procedures were used to obtain a total of 25 for the Personalization scale and a total of 30 for the Differentiation scale.

3.3 Statistical Information for ICEQ

Sample Most of the statistical information reported in this section is based on the combined data obtained from the two separate samples described in Table 1. The first sample consisted of 766 students in 34 classes, each in a different coeducational government high school, together with 34 teachers who took the classes either for science or social science. The sample was made up of approximately equal numbers of boys and girls, science and social science classes, and schools located in Sydney suburbs and country areas of New South Wales. Thirteen classes were at the Year 7 level, 14 were at the Year 8 level, and seven were at the Year 9 level. The second sample consisted of 2175 Year 8 and 9 students in 116 science classes, each with a different teacher, in 33 schools in Tasmania. Approximately equal numbers of schools were in country and suburban areas, and approximately equal numbers of boys and girls and of Year 8 and 9 classes made up the sample. The actual and preferred forms were administered simultaneously to random halves of the students in each class, so that the total number responding to the actual form was 1083 while the number answering the preferred form was 1092. As well, 56 of the 116 science teachers from these classes responded to the actual form of the ICEQ. Although the two samples were not randomly chosen, they were carefully selected to be as representative as possible of the population of schools in the States covered.

Table 1 Samples Sizes for Two Main Studies Involving Different Forms of Long Version of ICEQ

Location of Study	Student Actual		Student Preferred		Teacher Actual	Teacher Preferred
	Classes	Students	Classes	Students		
New South Wales	34	766	34	766	34	34
Tasmania	116	1083	116	1092	56	--
Total	150	1849	150	1858	90	34

As both the class mean and the individual student have been used commonly in past research, much of the statistical information below is presented separately for these two different units of analysis.

Mean and Standard Deviation Table 2 reports tentative normative data for the combined sample. Information consists of the mean and standard deviation for each form of the ICEQ for the total sample described in Table 1. As anticipated, standard deviations are quite a bit smaller for class means than for individuals.

Internal Consistency Reliability Estimates of the internal consistency of the four forms of each ICEQ scale were calculated using Cronbach's alpha coefficient. Class estimates of internal consistency were made simply by using the variance of class item means in conjunction with the conventional alpha formula. Table 3 shows the values obtained for each form of the ICEQ for both the individual and the class mean as the unit of statistical analysis. These values suggest that each ICEQ scale has acceptable internal consistency for use in each of its four forms and with either the individual student or the class mean as the unit of analysis.

Discriminant Validity Table 3 also reports data about discriminant validity (using the mean correlation of a scale with the other four scales as a convenient index). These values are small enough to suggest that each ICEQ scale has adequate discriminant validity for use in each of its four forms and with either the individual student or the class mean as the unit of analysis. It appears that the ICEQ measures distinct although somewhat overlapping aspects of classroom environment.

Test-Retest Reliability Some preliminary information about the test-retest reliability of the ICEQ was obtained for a sample of 105 junior high school students in suburban Sydney schools responding to the student actual form on two occasions three weeks apart. Test-retest reliability coefficients were found to be 0.78 for Personalization, 0.67 for Participation, 0.83 for Independence, 0.75 for Investigation, and 0.78 for Differentiation. These data suggest that the student actual form of the ICEQ displays satisfactory test-retest reliability.

Ability to Differentiate Between Classrooms A desirable characteristic of the student actual form of any classroom environment instrument is that it is capable of differentiating between the perceptions of students in different classrooms. This was explored for each scale of the ICEQ using the sample of 1849 students in 150 classes by performing a one-way ANOVA, with class membership as the main effect and using the individual as the unit of analysis. The result of these analyses are shown in Table 4 which indicates that each ICEQ scale differentiated significantly ($p<0.001$) between classrooms. The eta^2 statistic, which is an estimate of the amount of variance in ICEQ scores attributable to class membership, ranged from 20 per cent for the Investigation scale to 43 per cent for the Differentiation scale.

Table 2 Means and Standard Deviations for each Form of Long Version of ICEQ

Scale	Mean				Standard Deviation for Individuals				Standard Deviation for Class Means	
	Student actual (N=1849 or 150)[a]	Student pref. (N=1858 or 150)[a]	Teacher actual (N=90)	Teacher pref. (N=34)	Student actual (N=1849)	Student pref. (N=1858)	Teacher actual (N=90)	Teacher pref. (N=34)	Student actual (N=150)	Student pref. (N=150)
Personalization	32.7	37.2	37.9	42.9	6.7	6.4	5.0	3.5	3.4	3.0
Participation	33.9	36.7	36.5	41.0	5.3	5.4	4.7	4.0	2.5	2.3
Independence	27.8	29.8	26.2	25.7	6.0	6.1	6.0	5.9	3.3	2.7
Investigation	30.1	33.2	31.8	38.7	5.4	5.9	5.5	6.0	2.3	2.7
Differentiation	23.5	25.7	25.0	28.4	6.0	6.6	6.0	5.4	3.9	3.8

[a] Means were approximately the same whether the individual student or the class was used as the unit of analysis.

Table 3 Internal Consistency (Alpha Reliability) and Discriminant Validity (Mean Correlation of a Scale with Other Four Scales) for each Form of Long Version of ICEQ for Two Units of Analysis

Scale	Unit of Analysis	Alpha Reliability				Mean Correlation with Other Scales			
		Student actual (N=1849 & 150)[a]	Student pref. (N=1858 & 150)[a]	Teacher actual (N=90)	Teacher pref. (N=34)	Student actual (N=150)	Student pref. (N=150)	Teacher actual (N=90)	Teacher pref. (N=34)
Personalization	Individual	0.79	0.74	0.79	0.74	0.28	0.31	0.32	0.29
	Class	0.90	0.86			0.31	0.35		
Participation	Individual	0.70	0.67	0.79	0.82	0.27	0.29	0.39	0.34
	Class	0.80	0.75			0.32	0.32		
Independence	Individual	0.68	0.70	0.83	0.86	0.07	0.12	0.23	0.25
	Class	0.78	0.79			0.16	0.17		
Investigation	Individual	0.71	0.75	0.80	0.90	0.21	0.27	0.34	0.33
	Class	0.77	0.83			0.29	0.31		
Differentiation	Individual	0.76	0.75	0.85	0.81	0.10	0.16	0.29	0.16
	Class	0.91	0.92			0.19	0.20		

[a] The sample sizes shown are the number of individual students and classes, respectively.

Table 4 ANOVA Results for Class Membership Differences in Student Perceptions on Actual Form of Long Version of ICEQ

Scale	MS Between	MS Within	df	F	Eta^2
Personalization	169.4	33.3	150, 1699	5.1*	0.31
Participation	70.4	23.4	150, 1699	3.1*	0.21
Independence	107.8	22.2	150, 1699	4.9*	0.30
Investigation	73.6	26.0	150, 1699	2.8*	0.20
Differentiation	154.8	17.4	150, 1699	8.9*	0.43

* $p<0.001$

Eta^2 is the ratio of between to total sums of squares and indicates proportion of variance explained by class membership.

Sample size was 1849 students in 150 classes.

3.4 Cross-Validation of ICEQ

In addition to the main validation data contained in Table 3, cross-validation data are available for a sample of 712 students in 23 science classes in 8 different schools in Sydney (Fraser & Butts, 1982) and a sample of 373 Indonesian students in 18 classes in nine schools in Padang (Fraser, Pearse & Azmi, 1982). All cross-validation data compared favorably with that reported in Table 3. These statistics are important, not only because they provide additional support for the validity of the ICEQ when used with a different Australian sample, but also because they support the cross-cultural validity of the ICEQ for use in Indonesia.

3.5 Use of ICEQ

The various possible uses of the ICEQ are discussed in detail in section 8.0.

4.0 LEARNING ENVIRONMENT INVENTORY (LEI)

A comprehensive test manual for the LEI has been published recently (Fraser, Anderson & Walberg, 1982). So far, the LEI has been used only to measure actual environment, although there appears to be no reason why LEI items could not be used equally well to assess preferred environment.

4.1 Development and Description of LEI

The initial development and validation of a preliminary version of the LEI began in the late 1960s in conjunction with the evaluation and research on Harvard Project Physics. Beginning with the general format described by Hemphill and Westie (1950), Walberg (1968a) successfully devised an instrument called the Classroom Climate Questionnaire which inlcuded 18 scales selected by factor analysis and considered meaningful for the description of school class groups. The LEI is an expansion and improvement of the Classroom Climate Questionnaire. A form of the LEI developed in 1968 contained 14 scales, but a 1969 revision was expanded to include 15 scales. In selecting the 15 climate dimensions, an attempt was made to include as scales only concepts previously identified as good predictors of learning, concepts considered relevant to social psychological theory and research, concepts similar to those found useful in theory and research in education, or concepts intuitively judged relevant to the social psychology of the classroom.

The final version of the LEI contains a total of 105 statements (i.e., seven per scale) descriptive of typical school classes. The respondent expresses degree of agreement or disagreement with each statement on a four-point scale with response alternatives of Strongly Disagree, Disagree, Agree, and Strongly Agree. Also the scoring direction (or polarity) is reversed for some items. Pages 7 to 10 of the Appendix contains a copy of the whole LEI, while page 11 of the Appendix provides a separate Response Sheet.

4.2 Scoring and Scale Allocation

In order to facilitate ready hand scoring, the Response Sheet for the LEI has been designed so that all items belonging to a particular scale are located in the same horizontal row. The following simple method of hand scoring is illustrated for two LEI scales on the copy of the Response Sheet on page 28 of the Appendix:

(a) Score each item and record the item score. Underlined items (e.g., Items 61 and 105) are scored 4, 3, 2, and 1, respectively, for the response SD, D, A, and SA. (Underlining of item numbers identifies items which need to be scored in a different direction). All other items (e.g., Items 1 and 60) are scored in the reverse manner. Omitted or invalid responses (e.g., Items 30 and 31) are scored 2½.

(b) Add the scores in each horizontal row to obtain the total score for a particular scale and record this in the "Teacher Use Only" column. The scales measured by successive horizontal rows of items (starting with the first row) are Cohesiveness, Diversity, Formality, Speed, Material Environment, Friction, Goal Direction, Favoritism, Difficulty, Apathy, Democracy, Cliqueness, Satisfaction, Disorganization, and Competitiveness.

Page 27 of the Appendix shows how items are scored and how scores are added to give a total of 16½ for Cohesiveness and 18 for Competitiveness.

4.3 Statistical Information About LEI

Means and Standard Deviations Some normative data are provided in Table 5 based on a sample of students who responded to the LEI in 1969. This sample consisted of 1,048 individual students in 64 Grade 10 and 11 classes in various subject areas. Means and standard deviations are given separately for individuals and classes.

Reliability As the LEI can be used either to obtain scale scores for individuals within classes, or to generate class means, two types of reliability coefficient are shown in Table 6. The alpha coefficient for individual students is a measure of internal consistency, and the intraclass correlation is a coefficient indicating the reliability of class means based on the ratio of between-class variance to within-class variance. Data are shown for two separate samples of senior high school students in North America. The first set of alpha estimates is based on the data collected in 1967 from a random sample of 464 students participating in the evaluation of Harvard Project Physics. The first set of intraclass correlations is based on 29 large classes also drawn from the same sample. The second set of estimates for the alpha coefficients and the intraclass correlations are both based on the sample of 1,048 students in 64 classes in Montreal in 1969 in a variety of subject areas. Also some test-retest estimates are provided based on a sample of 139 individual students in 1970 in nine Grade 11 and 12 classes in three Boston area high schools. Taken together, the results contained in Table 6 suggest that all LEI scales possess satisfactory reliability.

TABLE 5 LEI Scale Means and Standard Deviations for Individuals and Classes

Scale	Individuals[a]		Class Means[b]	
	Mean	Standard Deviation	Mean	Standard Deviation
Cohesiveness	17.71	3.14	17.68	1.70
Diversity	20.23	2.32	20.36	0.75
Formality	18.00	3.44	17.67	2.05
Speed	17.33	3.41	17.63	1.63
Material Environment	16.77	3.06	16.51	1.50
Friction	16.82	3.33	17.16	1.79
Goal Direction	17.96	3.80	17.92	1.55
Favoritism	14.18	3.81	14.48	1.83
Difficulty	18.72	2.80	18.98	1.10
Apathy	17.80	3.74	17.96	1.84
Democracy	17.53	3.16	17.35	1.25
Cliqueness	19.33	2.94	19.56	1.30
Satisfaction	16.77	3.65	16.44	1.97
Disorganization	16.43	4.18	16.84	2.58
Competitiveness	17.04	3.33	16.96	1.32

[a]Based on 1,048 individual students in 64 classes with various subject areas in Montreal (1969 data)

[b]Based on 61 class means for the same sample (1969 data)

TABLE 6 Individual and Group Reliabilities of LEI Scales

Scale	Alpha Coefficient for Individuals (N=464)	Alpha Coefficient for Individuals (N=1048)	Intraclass Correlation for Groups (N=29)	Intraclass Correlation for Groups (N=64)	Test-Retest Reliability for Individuals (N=139)
Cohesiveness	0.78	0.69	0.82	0.85	0.52
Diversity	0.58	0.54	0.43	0.31	0.43
Formality	0.64	0.76	0.82	0.92	0.55
Speed	0.77	0.70	0.71	0.81	0.51
Material Environment	0.65	0.56	0.76	0.81	0.64
Friction	0.78	0.72	0.77	0.83	0.73
Goal Direction	0.86	0.85	0.71	0.75	0.65
Favoritism	0.77	0.78	0.53	0.76	0.64
Difficulty	0.66	0.64	0.84	0.78	0.46
Apathy	0.83	0.82	0.79	0.74	0.61
Democracy	0.67	0.67	0.54	0.67	0.69
Cliqueness	0.74	0.65	0.77	0.71	0.68
Satisfaction	0.80	0.79	0.74	0.84	0.71
Disorganization	0.81	0.82	0.82	0.92	0.72
Competitiveness	0.78	0.78	-	0.56	-

All reliability estimates are based on samples of senior high school students in North America. Alpha coefficients have been estimated for a sample of 464 students in 1967 and a sample of 1,048 students in 1969. Intraclass correlations were calculated on a sample of 29 classes in 1967 and of 64 classes in 1969. Test-retest data were collected in 1970 from a sample of 139 individuals.

Intercorrelations Among Scales LEI scale intercorrelations for class mean scores have been reported for a sample of 149 senior high school physics classes, and intercorrelations have been summarized by calculating the mean correlation of each scale with the other 14 scales (Fraser, Anderson & Walberg, 1982). The value of the mean correlation with the other scales was found to be 0.14 for Cohesiveness, 0.16 for Diversity, 0.18 for Formality, 0.17 for Speed, 0.24 for Material Environment, 0.36 for Friction, 0.37 for Goal Direction, 0.32 for Favoritism, 0.16 for Difficulty, 0.39 for Apathy, 0.34 for Democracy, 0.33 for Cliqueness, 0.39 for Satisfaction, 0.40 for Disorganization, and 0.08 for Competitiveness.

4.4 Research Involving LEI

Several reviews suggest that interest in the LEI has been evident among researchers internationally since the late 1960s (Randhawa & Fu, 1973; Anderson & Walberg, 1974; Walberg, 1976; Walberg, 1979; Walberg & Haertel, 1980; Fraser 1981a; Fraser & Walberg, 1981; Haertel, Walberg & Haeretl, 1981). The strongest tradition in prior research, however, has involved investigation of associations between student learning outcomes and their perceptions of classroom environment. Studies that have established relationships between outcomes and environment have been carried out in the U.S.A. (Walberg, 1969a, b, 1972; Lawrenz, 1976; Cort, 1979), Canada (Walberg & Anderson, 1972), O'Reilly (1975), Australia (Fraser, 1979; Power & Tisher, 1979), Israel (Hofstein et al, 1979), and India (Walberg, Singh & Rasher, 1977). In other studies, the LEI has been used for curriculum evaluation purposes (Anderson, Walberg & Welch, 1969; Fraser, 1979; Levin, 1980) or to relate classroom environment to other variables including teacher personality (Walberg, 1968b), class size (Walberg, 1969c; Anderson & Walberg, 1972), grade level (Welch, 1979), subject matter (Anderson, 1971; Kuert, 1979), and type of school (Hofstein et al, 1980).

5.0 MY CLASS INVENTORY (MCI)

The LEI has been simplified to form the MCI which is suitable for children in the 8 to 12 years age range (see Fisher & Fraser, 1981; Fraser, Anderson & Walberg, 1982). Although the MCI was developed originally for use at the elementary school level, it also has been found to be very useful with students in the first year of the junior high school, especially students who might experience reading difficulties with the LEI.

5.1 Development and Description of MCI

The MCI differs from the LEI in four important ways. First, in order to minimize fatigue among younger children, the MCI contains only five of the LEI's original 15 scales (namely, Cohesiveness, Friction, Satisfaction, Difficulty, and Competitiveness). Second, item wording has been simplified to enhance readability. Third, the LEI's four-point response format has been reduced to a two-point

(Yes-No) response format. Fourth, students answer on the questionnaire itself instead of on a separate response sheet to avoid errors in transferring responses from one place to another.

Although the MCI originally was designed to measure actual classroom environment, there is no reason why it could not be used also to measure preferred environment. In fact, Fraser & Deer (in press) recently reported the successful use of a preferred form of a short version of the MCI.

The final form of the MCI contains 38 items altogether (six for Cohesiveness, eight for Friction, eight for Difficulty, nine for Satisfaction, and seven for Competitiveness). Pages 12 to 15 of the Appendix contains a copy of the instrument. It can be seen from this Appendix that the reading level of the MCI is considerably lower than that of the LEI.

5.2 Scoring and Scale Allocation

In order to facilitate ready hand scoring, the MCI questionnaire has a "Teacher Use Only" column which indicates each item's scale allocation and scoring direction and provides spaces for recording item scores. The following simple method of hand scoring is illustrated for two scales on the copy of the MCI questionnaire on pages 29 to 32 of the Appendix:

(a) Score each item and record its score as shown. Items designated + in the "Teacher Use Only" column are scored 3 for Yes and 1 for No (e.g., Items 1 and 18). Items designated - are scored in the reverse manner (e.g., Items 7 and 21). Omitted or invalid responses are scored 2 (e.g., Items 8 and 36).

(b) Add the scores for items with the same scale identification (e.g., S) in the "Teacher Use Only" column to yield the total score for that scale. The five scale totals can be recorded in the "Teacher Use Only" spaces at the bottom of the first page of the questionnaire. Total scores on the Satisfaction, Friction, Competitiveness, Difficulty, and Cohesiveness scales are obtained by adding scores obtained for those items designated, respectively, S, F, CM, D, and CH.

For example, in the case of the questionnaire responses shown on pages 29 and 32, the Satisfaction total score is 17 and the Difficulty total score is 14.

5.3 Statistical Information for MCI

Table 7 provides statistical information for the MCI based on a large and representative sample of 2,305 seventh grade students in 100 science classrooms in 30 schools throughout Tasmania, Australia. This information includes the mean and standard deviation for each scale for this sample. Although standard deviations are shown separately for the individual student and the class mean as the unit of analysis, scale means were sufficiently similar for the two sampling units to justify a single entry in the table.

TABLE 7 Means, Standard Deviations, Reliabilities, and Intercorrelations for MCI Scales

Scale	Number of Items	Mean[a]	Standard Deviation		Alpha Reliability		Scale Intercorrelations (N=100)					Mean Correl. with other scales
			Students (N=2305)	Classes (N=100)	Students (N=2305)	Classes (N=100)	Coh	Fri	Dif	Sat	Comp	
Cohesiveness	6	14.01	3.12	1.41	0.67	0.80	-					0.27
Friction	8	18.23	3.81	1.92	0.67	0.75	-.41	-				0.30
Difficulty	8	12.31	3.40	1.44	0.62	0.73	-.17	.17	-			0.20
Satisfaction	9	18.87	5.08	2.77	0.78	0.88	.36	-.41	-.31	-		0.28
Competitiveness	7	16.20	3.62	1.51	0.71	0.81	-.13	.20	-.13	.05	-	0.13

[a]Means were approximately the same for both the student and the class as the unit of analysis.

The sample consisted of 2,305 students in 100 seventh grade classes.

Reliability estimates for each MCI scale are shown for both the individual student and the class mean as the unit of analysis. In each case, the alpha coefficient was used as the index of internal consistency reliability. Table 7 shows that each MCI scale has satisfactory reliability for use with either the individual or the class as the unit of analysis.

The scale intercorrelations shown in Table 7 were calcualted using the class mean as the unit of analysis. Also, in the last column of the table, data have been summarized to form the mean correlation of each scale with the other four scales. The data in Table 7 suggests that the MCI measures distinct, although somewhat overlapping, aspects of classroom learning environment.

Whether each MCI scale was capable of differentiating between the perceptions of students in different classrooms was explored for the sample of 2,305 students in 100 classrooms using a one-way ANOVA, with class membership as the main effect and using the individual as the unit of analysis. It was found that each MCI scale differentiated significantly ($p<0.001$) between classrooms, and that the eta^2 statistic, which is an estimate of the amount of variance in MCI scores attributable to class membership, ranged from 0.18 for the Difficulty scale to 0.31 for the Friction scale.

5.4 Research Involving MCI

Although the MCI has been used extensively in local evaluations, usually these either remain unreported or are reported in unavailable, unpublished sources. The number of published studies using the MCI is relatively small compared with the volume of published research involving the LEI. Published reports include investigations of outcome-environment relationships (Talmage & Walberg, 1978; Boulanger, 1980; Fraser & Fisher, 1982a), a curriculum evaluation study (Talmage & Hart, 1977), and a practical attempt to improve classroom environments (Fraser & Deer, in press).

6.0 CLASSROOM ENVIRONMENT SCALE (CES)

The CES was developed by Rudolf Moos at Stanford University (Trickett & Moos, 1973; Moos & Trickett, 1974) and grew out of a comprehensive program of research involving perceptual measures of a variety of human environments including psychiatric hospitals, prisons, university residences, and work milieus (Moos, 1974). Like the ICEQ, the CES can be used to measure preferred (or "ideal") environment as well as actual (or "real") environment, and to measure teachers' perceptions as well as students' perceptions. Despite the existence of these different forms of the CES, however, Moos and Trickett's (1974) manual reports validation data for the student actual form only. Also, no data for the CES hitherto have been available specifically for samples of science classes. Consequently, an important contribution made by this workshop manual is the provision of validation data for several forms of the CES for samples of science students and teacher specifically.

6.1 Development and Description of CES

The original version of the CES consisted of 242 items representing 13 conceptual dimensions (Trickett and Moos (1973). Following trials of the items in 22 classrooms and subsequent item analysis, the number of items was reduced to 208. This item pool was administered in 45 classrooms and modified to form the final 90-item version of the CES. These items were evaluated statistically according to whether they discriminated significantly between the perceptions of students in different classrooms and whether they correlated highly with their scale scores. In addition, items were selected to divide the scoring approximately into half with true answers and half with false answers, both within each scale and over the entire test.

Moos and Trickett's final version of the CES contains nine scales with 10 items of True-False response format in each scale. This version is available in published form from Consulting Psychologists Press (Moos & Trickett, 1974). Published materials include a test manual, a questionnaire, an answer sheet, and a transparent hand scoring key.

For the convenience of readers, a version of the CES similar (but not identical) to the published version is contained on pages 16 to 19 of the Appendix. Since our research involved use of the CES and the ICEQ within the one study, we used instructions for answering the CES (see page 16 of the Appendix) whose wording was analogous to the ICEQ's instructions (see page 1 of the Appendix). Similarly, the Answer Sheet which we used for the CES (see page 20 of the Appendix) was modelled on the ICEQ's Answer Sheet (see page 5 of the Appendix). A preferred form of the CES can be assembled simply by using the same items as in the actual form and by changing the instructions for answering so that they are analogous to those for the preferred form of the ICEQ (see page 2 of the Appendix).

Application of item analysis techniques with our data from science classrooms led to the identification of three items whose removal resulted in a noticeable improvement in scale statistics. These were Item 41 from the Competition scale ("Students grades are lowered if they get homework in late"), Item 63 from the Innovation scale ("Students are expected to follow set rules in doing their work") and Item 86 from the Competition scale ("Students usually pass even if they don't do much"). Because we felt that these items had low face validity with our sample of science classes as measures of the scale to which they were assigned, we omitted these three items in estimating all statistics reported in section 6.3.

6.2 Scoring and Scale Allocation

The CES Answer Sheet on page 20 of the Appendix has some features which facilitate hand scoring. Underlining of item numbers identifies items scored in the opposite direction to other items. Also, items

are arranged in cyclic order so that all items from a particular scale are found in the same horizontal row in the Answer Sheet. The copy of the Answer Sheet on page 33 of the Appendix illustrates the following simple method of hand scoring:

(a) Score each item and record the item score as shown. Items not underlined are scored 3 for True and 1 for False. Underlined items are scored in the reverse manner (i.e., 1 for True and 3 for False). Omitted or invalidly answered items (e.g., Items 24 and 51) are given a score of 2.

(b) Add the 10 item scores in each horizontal row to obtain the total score for ICEQ scales. For example, the sum of the scores for the items in the first horizontal row (i.e, Items 1, 10, 19, 28, 37, 46, 55, 64, 73, 82) represents the total on the Involvement scale. The second, third, fourth, fifth, sixth, seventh, eighth, and ninth horizontal rows on the Answer Sheet contain items measuring, respectively, Affiliation, Teacher Support, Task Orientation, Competition, Order and Organization, Rule Clarity, Teacher Control, and Innovation.

Page 33 of the Appendix illustrates how these hand scoring procedures were used to obtain a total of 18 for the Involvement scale and a total of 24 for the Order and Organization scale.

6.3 Statistical Information for CES

Samples Student actual and student preferred forms of the CES were administered to the same sample of 116 junior high school science classes described previously in Table 1. A total of 1,083 students replied to the actual form, while 1,092 students responded to the preferred form. Also 56 of the 116 teachers who taught science to these classes responded to the CES's teacher actual form.

Items 41 and 86 from the Competition scale and item 63 from the Innovation scale have been omitted in estimating all statistics reported below.

Means and Standard Deviations The mean and standard deviation is shown in Table 8 for the student actual, student preferred, and teacher actual form of each CES scale for the samples described above. Means were approximately the same whether the class or the student was used as the unit of analysis, but values of the standard deviation are shown separately in Table 8 for individuals and classes.

Reliability Table 9 shows that the alpha coefficient was used in estimating the internal consistency reliability of the three forms of CES scales. Reliability information for the student forms are given in Table 9 separately for individual students and class means. Results suggest that CES scales generally have adequate internal consistency for use in each of the three forms and with either the individual student or the class mean as the unit of analysis.

Table 8 Means and Standard Deviations for each Form of CES

Scale	Mean[a]			Standard Deviation For Individuals			Standard Deviation For Class Means	
	Student actual (N=1083)	Student preferred (N=1092)	Teacher actual (N=56)	Student actual (N=1083)	Student preferred (N=1092)	Teacher actual (N=56)	Student actual (N=116)	Student preferred (N=116)
Involvement	20.6	23.1	24.8	5.0	5.2	4.6	2.7	2.7
Affiliation	23.8	25.1	25.1	4.0	3.9	3.9	1.9	1.8
Teacher Support	21.3	23.1	25.3	5.0	4.6	3.3	2.9	2.4
Task Orientation	24.8	23.7	25.7	3.6	3.7	3.8	1.8	1.6
Competition[b]	17.4	17.3	16.8	3.1	3.1	3.7	1.4	1.2
Order & Organization	21.7	23.2	25.2	5.2	4.9	4.5	3.3	2.8
Rule Clarity	23.4	24.3	27.0	4.3	4.1	3.7	2.1	1.8
Teacher Control	22.0	21.7	22.1	4.3	4.1	4.0	2.2	1.9
Innovation[c]	17.9	20.3	18.5	3.7	4.2	4.2	2.0	2.0

a Means were approximately the same for both the student and the class as the unit of analysis.

b Competition scale contains 8 items only.

c Innovation scale contains 9 items only.

Table 9 Internal Consistency Reliability (Alpha Coefficient) and Discriminant Validity (Mean Correlation with Other Eight Scales) for Three Forms of CES for Two Units of Analysis

Scale	Unit of Analysis	Alpha Reliability			Mean Correlation with Other Scales		
		Student actual (N=1083 or 116)	Student preferred (N=1092 or 116)	Teacher actual (N=56)	Student actual (N=1083 or 116)	Student preferred (N=1092 or 116)	Teacher actual (N=56)
Involvement	Indiv.	0.70	0.75	0.76	0.40	0.39	0.32
	Class	0.81	0.84		0.42	0.43	
Affiliation	Indiv.	0.60	0.63	0.65	0.24	0.32	0.31
	Class	0.71	0.70		0.29	0.39	
Teacher Support	Indiv.	0.72	0.67	0.63	0.29	0.37	0.25
	Class	0.85	0.80		0.38	0.39	
Task Orientation	Indiv.	0.58	0.58	0.68	0.23	0.22	0.30
	Class	0.72	0.65		0.31	0.24	
Competition	Indiv.	0.51	0.50	0.62	0.09	0.08	0.23
	Class	0.60	0.60		0.08	0.16	
Order and Organization	Indiv.	0.75	0.73	0.77	0.29	0.37	0.31
	Class	0.90	0.86		0.40	0.38	
Rule Clarity	Indiv.	0.63	0.60	0.70	0.29	0.34	0.17
	Class	0.76	0.69		0.36	0.39	
Teacher Control	Indiv.	0.60	0.55	0.57	0.16	0.18	0.17
	Class	0.71	0.67		0.23	0.32	
Innovation	Indiv.	0.52	0.63	0.66	0.19	0.37	0.22
	Class	0.71	0.73		0.29	0.38	

The sample of junior high school science classes in Australia involved 1,083 students in 116 classes responding to the actual form, 1,092 students in 116 classes responding to the preferred form, and 56 teachers responding to the acutal form.

In the present study, all scales contained 10 items except for Competition (8 items) and Innovation (9 items).

Table 10

ANOVA Results for Class Membership Differences in Student Perceptions on Actual Form of CES

Scale	MS Between	MS Within	df	F	Eta^2
Involvement	63.8	18.9	115, 967	3.4*	0.29
Affiliation	30.2	13.9	115, 967	2.2*	0.21
Teacher Support	79.8	18.2	115, 967	4.4*	0.34
Task Orientation	29.6	10.5	115, 967	2.8*	0.25
Competition	17.0	9.1	115, 967	1.9*	0.18
Order & Organization	108.1	17.2	115, 967	6.3*	0.43
Rule Clarity	35.3	15.9	115, 967	2.2*	0.21
Teacher Control	46.8	15.2	115, 967	3.1*	0.27
Innovation	32.8	11.1	115, 967	3.0*	0.26

*$p < .001$

Eta^2 is the ratio of between to total sums of squares and indicates proportion of variance explained by class membership.

Sample size was 1,083 students in 116 classes.

Discriminant Validity Table 9 also reports data about discriminant validity, using the mean correlation of a scale with the other eight scales as a convenient index. Overall these values suggest that each form of the CES measures distinct although somewhat overlapping aspects of classroom environment.

Ability to Differentiate Between Classrooms Each CES scale's ability to differentiate between the perceptions of students in different classrooms was explored for each scale of the student actual form of the CES using the sample of 1,083 students in 116 classes. This involved performing a one-way ANOVA, with class membership as the main effect and using the individual as the unit of analysis. The results of these analyses are shown in Table 10 which indicates that each CES scale differentiated significantly ($p<0.001$) between classrooms. The eta^2 statistic, which provides an estimate of the amount of variance in CES scores attributable to class membership, ranged from 18 to 43 per cent for different scales.

6.4 Research Involving CES

Several studies have established associations between students' outcomes and their perceptions of classroom environment as measured by the CES (Trickett & Moos, 1974; Moos & Moos, 1978; Moos, 1979; Fisher & Fraser, 1983). Other studies have used the CES to investigate differences between students and teachers in their perceptions of classroom environment (Fisher & Fraser, in press), relationships between subject matter and classroom environment (Hearn & Moos, 1978), differences in the classroom environment of different types of schools (Trickett, 1978), and whether students achieve better when in their preferred classroom environment (Fraser & Fisher, 1983a).

7.0 SHORT FORM OF ICEQ, MCI, AND CES

Although the long forms of the several classroom environment instruments have been used successfully for a variety of purposes, some researchers have expressed a preference for a more rapid and economical instrument. Similarly some teachers using these scales for local, school-based applications have reported that they would like instruments to take less time to administer and score. Consequently, Fraser and Fisher (1982b) developed short forms of the ICEQ, MCI, and CES.

7.1 Development and Description of Short Forms

Three main criteria guided the initial development of the short forms. First, the total number of items in each instrument was reduced approximately to 25 to provide greater economy in testing and scoring time. Second, the short forms were designed to be amenable to easy hand scoring. Third, although most existing classroom environment instruments were developed to provide adequate reliability for the assessment of the perceptions of individual students, the majority of applications involve averaging the perceptions of students within a

class to obtain class means. Consequently, it was decided that the short forms would be developed to have adequate reliability for uses involving the assessment of class means. The use of the long form of these instruments, however, is still recommended for applications involving the individual student as the unit of analysis or the assessment of teachers' classroom environment perceptions.

The development of the short forms was based largely on the results of several item analyses performed on data obtained by administering the long form of each instrument to a large sample of science students. In particular, the internal consistency of each scale was maximized by selecting items with large item-remainder correlations (i.e., correlations between item score and total score of the rest of the scale), and discriminant validity was enhanced by including only those items whose correlation with its a priori assigned scale was smaller than its correlation with any other items in the battery. In addition to these statistical criteria, the development of the short forms was based on logical considerations inlcuding face validity and an attempt to achieve a balance of items with positive and negative scoring directions (both within each scale and within each instrument as a whole). Nevertheless, because the long forms of some scales have an imbalance in the number of items with positive and negative polarity, this imbalance tended to be maintained in the short forms of these scales.

The application of the above criteria led to the development of short forms of the ICEQ and the MCI each consisting of 25 items divided equally among the five scales comprising the long form of each instrument. Because the long form of the CES consisted of 90 items, this was reduced considerably to form a short version with 24 items divided equally among six of the original nine scales. Furthermore, the development of this short form was guided by the fact that Trickett and Moos (1973) previously had recommended a short four-item version of each of the CES's nine scales. In fact, the present short form consists of five scales which are identical to those recommended by Trickett and Moos (namely, Involvement, Affiliation, Teacher Support, Order and Organization, and Rule Clarity) and a sixth scale (namely, Task Orientation) which contains two out of the four items recommended. In addition to developing short forms of the actual version of each instrument, short forms of the preferred versions of the ICEQ and CES were also developed at the same time.

A copy of the short form of the ICEQ, MCI, and CES are shown in the Appendix on pages 21 to 26. Although only the actual version of each instrument is included in the Appendix, preferred versions could be assembled by using the same items in conjunction with directions for answering analogous to those shown for the preferred version of the long form of the ICEQ (see page 2 of the Appendix). Unlike the long forms, the short forms do not need to make use of a separate answer sheet since all items and space for responding fit on a single page.

7.2 Scoring and Scale Allocation

The short forms of the ICEQ, MCI and CES are readily scored by hand. First, underlining of an item number together with inclusion of the letter "R" in the Teacher Use Only column identifies those items which need to be scored in the reverse direction. Second, items are arranged in blocks and in cyclic order so that all items from the same scale are found in the same position in each block. For example, the first item in each block of five items in the ICEQ belongs to the Personalization scale (see page 22 of the Appendix).

ICEQ Page 34 of the Appendix illustrates how the short form of the ICEQ is scored. Items not underlined or without the letter "R" are scored by allocating the circled number (i.e., by scoring 1, 2, 3, 4, and 5, respectively, for the responses Almost Never, Seldom, Sometimes, Often, and Very Often. Underlined items with the letter "R" are scored in the reverse manner. Omitted or invalidly answered items are scored 3.

To obtain scale totals, the five item scores for each scale are added. The first, second, third, fourth, and fifth items in each block of five, respectively, measures Personalization, Participation, Independence, Investigation, and Differentiation. For example, the total Personalization score is obtained by adding scores for items 1, 6, 11, 16, and 21. Scale totals can be written in the spaces provided at the bottom of the questionnaire. Page 34 of the Appendix illustrates how these scoring procedures were used to obtain a total of 16 for the Personalization scale and a total of 12 for the Differentiation scale.

MCI Page 35 of the Appendix illustrates how the short form of the MCI is scored. Items not underlined and without "R" in the Teacher Use Only column are scored by allocating 3 for Yes and 1 for No. Underlined items with "R" are scored in the reverse manner. Omitted or invalidly answered items are scored 3.

To obtain scale totals, the five item scores for each scale are added. The first, second, third, fourth, and fifth items in each block of five, respectively, measures Satisfaction, Friction, Competitiveness, Difficulty, and Cohesiveness. For example, the total Satisfaction scale is obtained by adding scores for Items 1, 6, 11, 16, and 21. Scale totals can be recorded in the spaces provided at the bottom of the questionnaire (see page 24 of the Appendix). Page 35 of the Appendix illustrates how these scoring procedures were used to obtain a total of 10 for Satisfaction and a total of 12 for Cohesiveness.

CES Page 36 of the Appendix illustrates how the short form of the CES is scored. Items not underlined and without the letter "R" are scored 3 for True and 1 for False. Underlined items with the letter "R" are scored in the reverse manner. Omitted or invalid responses are scored 2.

To obtain scale totals, the four item scores for each scale are added. The first, second, third, fourth, fifth, and sixth items in each block of six, respectively, measures Involvement, Affiliation, Teacher Support, Task Orientation, Order and Organization, and Rule Clarity. Scale totals can be written in the spaces provided at the bottom of the questionnaire. Page 36 of the Appendix illustrates how these scoring procedures were used to obtain a total of 9 for the Involvement scale and a total of 7 for the Rule Clarity scale.

7.3 Validation of Short Forms

Table 11 provides statistical information about the short form of each scale based on the use of the class mean as the unit of analysis with data collected from large and representative samples of junior high school classes in Tasmania, Australia. The actual and preferred

forms of the ICEQ and CES were administered to the sample of 116 classes described previously in Table 1, whereas the actual form of the MCI was administered to the sample of 100 classes of Grade 7 students described in section 5.0 in relation to the long form of the MCI. Data reported in Table 11 for the actual and preferred versions of instruments provide evidence in support of each short scale's concurrent validity (namely, the correlation between long and short forms), internal consistency (alpha reliability coefficient), and discriminant validity (using the mean magnitude of the correlation of a scale with the other scales in the same instrument as a convenient index). In addition, the last two columns of figures in Table 11 compare the long and short forms with respect to the predictive validity of the actual form of each scale (using the correlation of environment scales with a cognitive and an affective outcome).

The first column of figures in Table 11 shows that the 27 correlations between scale scores on the long form and the short form ranged from 0.78 to 0.97, with an overall mean of 0.90. These large values support the concurrent validity of the short forms. Table 11 also compares the long form and the short form of each scale with respect to internal consistency and discriminant validity (using the class as a unit of analysis). Whereas the 27 values of the alpha coefficient ranged from 0.65 to 0.92 with a mean of 0.79 for the long form of different scales, they ranged from 0.56 to 0.85 with a mean of 0.70 for the short forms. These data indicate that the reliability of a scale's short form is typically approximately 0.1 smaller than the reliability of the corresponding long form, and that the short forms generally have adequate reliability for applications involving class means. Table 11 also shows that the values of the mean correlation of a scale with the other scales in the same instrument are quite similar for the long and short forms of these scales. These values suggest that the short forms display adequate discriminant validity, and that both the short and long forms of scales in each instrument measure distinct although somewhat overlapping aspects of classroom environment.

Because much prior research has involved investigation of the predictability of student outcomes from their perceptions of classroom environment, it was considered desirable to furnish some evidence about the predictive validity of the short form of the actual version of the instruments. This involved use of the class mean as the unit of analysis in comparing long and short forms in terms of the correlations between environment scales and a cognitive and an affective measure which had been responded to by all students in the different samples. The cognitive outcome was the skill of drawing conclusions and generalizations from data, whereas the affective outcome was interest in science. Table 11 shows that the magnitudes of outcome-environment correlations for the short forms were very similar to those found with the long forms. In fact, for both long and short forms, some significant relationships ($p < .05$) emerged for each outcome for each of the three instruments, and correlations were significantly different from zero in five cases for the cognitive outcome and in nine cases for the affective outcome.

The ability of each scale in the short actual forms to differentiate between the perceptions of students in different classrooms was explored

Table 11

Correlation between Long and Short Forms, Alpha Reliability and Mean Correlation with Other Scales for Long and Short Forms, and Correlation of Short Form with Cognitive and Affective Outcome for each Scale in ICEQ, MCI, and CES

Scale	Correl. between Long & Short Form	Form	Alpha Reliability		Mean Correl. with Other Scales		Correl. of Short Form with Outcome	
			Long form	Short form	Long form	Short form	Cognitive	Affective
ICEQ								
Personalization	0.95	Actual	0.88	0.83	0.36	0.30	-0.04	0.09
	0.94	Pref.	0.82	0.73	0.35	0.35		
Participation	0.92	Actual	0.78	0.73	0.35	0.29	0.25**	0.22*
	0.91	Pref.	0.74	0.70	0.37	0.36		
Independence	0.84	Actual	0.78	0.70	0.16	0.15	0.04	0.10
	0.84	Pref.	0.79	0.75	0.17	0.20		
Investigation	0.91	Actual	0.74	0.69	0.32	0.34	0.14	0.20*
	0.93	Pref.	0.83	0.63	0.37	0.36		
Differentiation	0.97	Actual	0.92	0.85	0.29	0.25	-0.26**	-0.03
	0.97	Pref.	0.88	0.84	0.18	0.13		
MCI								
Satisfaction	0.94	Actual	0.88	0.78	0.28	0.28	0.20*	0.21*
Friction	0.91	Actual	0.75	0.71	0.30	0.30	-0.14	-0.08
Competitiveness	0.95	Actual	0.81	0.71	0.13	0.11	-0.11	0.18
Difficulty	0.91	Actual	0.73	0.65	0.20	0.13	0.03	-0.29**
Cohesiveness	0.97	Actual	0.80	0.67	0.27	0.24	0.00	0.13
CES								
Involvement	0.92	Actual	0.81	0.65	0.42	0.43	0.07	0.28**
	0.93	Pref.	0.84	0.71	0.43	0.41		
Affiliation	0.78	Actual	0.71	0.64	0.29	0.29	0.16	0.20*
	0.79	Pref.	0.70	0.60	0.39	0.31		
Teacher Support	0.92	Actual	0.85	0.78	0.38	0.41	0.08	0.10
	0.87	Pref.	0.80	0.65	0.39	0.35		
Task Orientation	0.80	Actual	0.72	0.59	0.33	0.36	0.30**	0.26**
	0.78	Pref.	0.65	0.56	0.24	0.37		
Order & Organization	0.95	Actual	0.90	0.74	0.40	0.40	0.21*	0.39**
	0.94	Pref.	0.86	0.74	0.38	0.43		
Rule Clarity	0.90	Actual	0.76	0.66	0.36	0.38	-0.01	0.25**
	0.84	Pref.	0.69	0.63	0.39	0.43		

* $p<.05$, ** $p<.01$

Data are based on 116 class means for ICEQ and CES and on 100 class means for MCI.

using one-way ANOVAs (with class membership as the main effect). The results of these analyses (see Table 12) show that the short form of the actual version scale of the 16 scales differentiated significantly ($p<.01$) between the perceptions of students in different classrooms. The eta^2 statistic - which is an estimate of the variance in environment scores attributable to class membership - ranged from 0.21 to 0.39 for the ICEQ, from 0.19 to 0.29 for the MCI, and 0.19 to 0.39 for the CES.

7.4 Cross-Validation of Short Form of MCI with Third Graders

The short form of the MCI has been used successfully in some recent research (Fraser & Deer, in press). This research is noteworthy for several reasons. First, it provided favorable cross-validation information about the short form of the MCI. Second, its use of a preferred version of the MCI provided the first instance in which the MCI (either in its long or short form) had been used to measure preferred perceptions. Third, as the study involved a Grade 3 sample, it provided one of the few existing attempts to pursue classroom environment research with students of such a young age.

The sample consisted of 758 Grade 3 students in 32 classes in eight schools in an outer suburb of Sydney. Several schools in this area have been classified as disadvantaged and have a large proportion of low-income and non-English speaking families. As reading difficulties were anticipated among some students in this sample, a research assistant visited each school to administer the short form of the MCI orally. The sample responded to an actual and a preferred form.

Table 13 reports some validation information for this sample. Data reported include indexes of internal consistency reliability (alpha coefficients) and discriminant validity (mean correlation of a scale with the other scales). The table shows that alpha coefficients ranged from 0.58 to 0.81 for the actual form and from 0.60 to 0.62 for the preferred form. These values indicate reasonably satisfactory reliability for applications involving class means, especially since each scale contains only five items. The magnitudes of the mean correlation of a scale with the other scales ranged from 0.11 to 0.31 for the actual form and from 0.30 to 0.38 for the preferred form. These values suggest adequate discriminant validity. Also, the one-way ANOVA results in Table 13 indicate that the actual form of each short MCI scale differentiated significanlty ($p<.001$) between classrooms and that the amount of variance in MCI scores attributable to class membership ranged from 0.15 to 0.33.

Table 12 ANOVA Results for Class Membership Differences in Scores on Short Actual Form of each Scale in ICEQ, MCI, and CES

Instrument	Scale	ANOVA Results for Class Membership Differences	
		F	Eta^2
Individualized Classroom Environment Questionnaire (ICEQ)	Personalization	4.8*	0.29
	Participation	3.0*	0.21
	Independence	4.1*	0.28
	Investigation	3.0*	0.22
	Differentiation	7.5*	0.39
My Class Inventory (MCI)	Satisfaction	3.7*	0.28
	Friction	3.9*	0.29
	Cohesiveness	2.3*	0.20
	Competitiveness	2.3*	0.19
	Difficulty	2.0*	0.19
Classroom Environment Scale (CES)	Involvement	3.1*	0.27
	Affiliation	2.0*	0.20
	Teacher Support	4.1*	0.31
	Task Orientation	3.0*	0.25
	Order & Organization	5.5*	0.39
	Rule Clarity	2.1*	0.19

* $p < .01$

Table 13 Alpha Reliability, Mean Correlation with Other Scales, and ANOVA Results for Class Membership Differences for Short Form of MCI for Third Grade Sample

Scale	Form	Alpha Reliability	Mean Correl with Other Scales	ANOVA Results for Actual Form	
				F	Eta^2
Satisfaction	Actual	0.68	0.30	7.1*	0.23
	Preferred	0.75	0.38		
Friction	Actual	0.78	0.27	11.7*	0.33
	Preferred	0.82	0.34		
Cohesiveness	Actual	0.81	0.25	9.0*	0.28
	Preferred	0.78	0.30		
Competitiveness	Actual	0.70	0.11	4.2*	0.15
	Preferred	0.77	0.32		
Difficulty	Actual	0.58	0.31	4.0*	0.15
	Preferred	0.60	0.31		

*$p<0.001$

Data are based on 32 classes for the Grade 3 sample.

Eta^2 is the ratio of between to total sums of squares and represents the proportion of variance explained by class membership.

8.0 USES OF CLASSROOM ENVIRONMENT INSTRUMENTS

In order to illustrate the range of possible uses of classroom environment scales, this section briefly reviews past studies which have employed the long form of the ICEQ. The six types of research considered involved (1) associations between student outcomes and classroom environment, (2) differences between scores on various forms of the ICEQ, (3) evaluations of innovations in classroom individualization, (4) investigation of whether students achieve better when in their preferred environments, and (5) practical attempts to improve classroom environments.

8.1 Associations Between Student Outcomes and Classroom Environment

The strongest tradition in past classroom environment research has involved investigation of associations between students' cognitive and affective learning outcomes and their perceptions of psychosocial characteristics of their classrooms (Haertel, Walberg & Haertel, 1981). Numerous research programs have shown that student perceptions account for appreciable amounts of variance in learning outcomes often beyond that attributable to background student characteristics. The practical implication from this research is that student outcomes might be improved by creating classroom environments found empirically to be conducive to learning. A preliminary study involving use of the actual form of the ICEQ among 285 students in 15 classes revealed that ICEQ scores were significantly related to an attitudinal outcome but not with two cognitive outcomes (Rentoul & Fraser, 1980). Another study involving 320 students in 14 science classes confirmed the existence of associations between several attitudinal outcomes and the degree of classroom individualization as measured by the ICEQ (Fraser, 1981c; Fraser & Butts, 1982). Furthermore, this finding of relationships between affective outcomes and perceptions of classroom individualization has been replicated in Indonesian classrooms using a translated version of the ICEQ (Fraser, Pearse & Azmi, 1982).

Recently, Fraser and Fisher (1982c) reported a more comprehensive study involving the use of the ICEQ in investigating outcome-environment relationships among the sample of 116 Year 8 and 9 classes in Tasmania described previously in Table 1. The class mean was used as the unit of analysis. The ICEQ was administered at mid-year and learning outcomes were assessed at both the beginning and end of the year with three cognitive measures and six affective measures. Use of a variety of data analysis techniques revealed numerous significant relationships between student outcomes and ICEQ dimensions. For example, more skill at drawing conclusions and generalizations was found in classes perceived as having greater Investigation, and more leisure interest in science was found in classes perceived as having greater Participation. Other analyses reported by Fraser and Fisher (1982c) indicated that the magnitudes of outcome-environment associations were larger when the class was employed as the unit of analysis than when the student was used.

8.2 Differences Between Scores on Various Forms of ICEQ

The fact that the ICEQ has four different forms (i.e., student actual, student preferred, teacher actual, teacher preferred) permits investigation of differences between students and teachers in their perceptions of the same actual classroom environment and of differences between the actual environment and that preferred by students or teachers. These questions were investigated by Fraser (in press) using the previously described sample of 34 teachers and their 766 students in 34 junior high school classes in New South Wales (see Table 1). In comparison with the emphasis they perceived as being actually present, both students and teachers were found to prefer a greater emphasis on the dimensions of individualization covered by the ICEQ. Also, teachers tended to perceive greater actual individualization in their classrooms than was perceived by their students in the same classrooms.

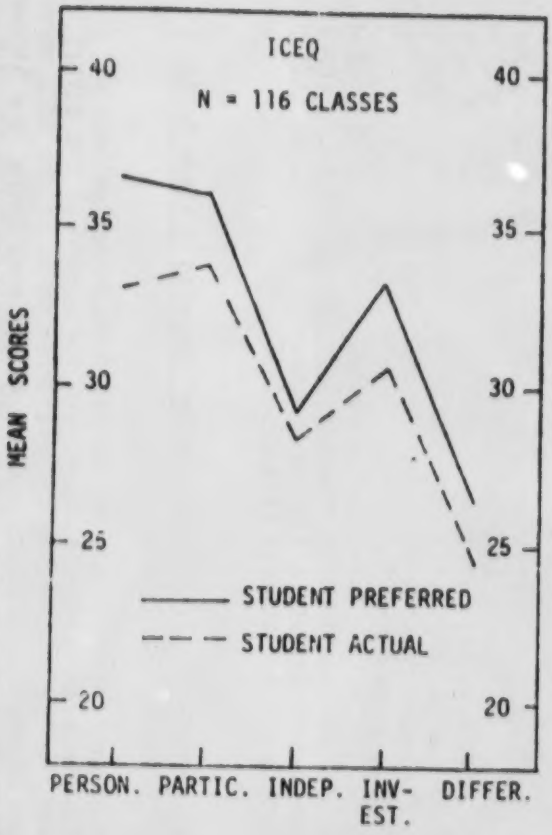
This research into differences between forms has been replicated recently by Fisher and Fraser (in press) using the sample of 116 classes of students and 56 teachers described in Table 1. The results of this study are depicted in Figure 1, which shows simplified plots of statistically significant differences between forms. Figure 1 clearly shows that prior results were replicated in that students preferred greater individualization than was actually present for all five ICEQ dimensions, and that teachers perceived greater individualization than did their students on four of the ICEQ's dimensions. These studies inform educators that students and teachers are likely to differ in the way they perceive the actual environment of the same classrooms, and that the environment preferred by students commonly differs from that actually present in classrooms.

8.3 Evaluation of Educational Innovations

One promising but largely neglected use of classroom environment instruments is as a source of process criteria in curriculum evaluation (Fraser, 1981a). As many curricula attempt to achieve more individualization, the ICEQ provides a useful tool for monitoring changes in student perceptions of five important aspects of individualization. For example, when the ICEQ was used in the evaluation of a project aimed at promoting individualized learning approaches, it was found that students in the school implementing the innovation perceived their classes as significantly more individualized on a number of ICEQ scales than did a comparison group of students (Fraser, 1980).

8.4 Person-Environment Fit Studies of Whether Students Achieve Better in Their Preferred Environment

Whereas past research has concentrated on investigations of associations between student outcomes and the nature of the actual environment, having both actual and preferred forms of the ICEQ permits exploration of whether students achieve better when there is a higher similarity between the actual classroom environment and that preferred by students. Such research is an example of what is referred to as person-environment fit research (Hunt, 1975). In a previous small-scale study among 285 students in 15 classes (Fraser & Rentoul 1980; Rentoul & Fraser, 1980), the ICEQ was used to provide five dimensions



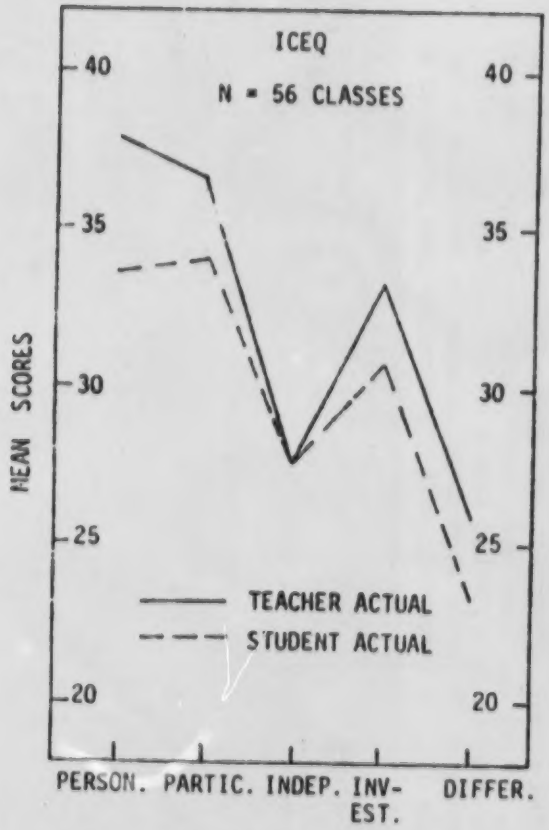


Figure 1. Simplified Plots of Significant Differences Between Forms of ICEQ

of actual classroom individualization and five corresponding dimensions of preferred environment. When the individual was used as the unit of analysis, results of multiple regression analyses supported the person-environment fit hypothesis by showing that higher levels of actual classroom individualization enhanced student outcomes only among students who had higher preferences for individualization. On the other hand, higher levels of actual individualization seemed to retard achievement among students with lower preferences for Individualization.

This initial person-environment fit study has been replicated recently with a large sample consisting of the 116 classes described in Table 1 (Fraser & Fisher, 1983b). The class was employed as the unit of analysis and regression surface analyses were used to explore and depict relationships between student outcomes, actual environment on each ICEQ dimension, and preferred environment on the corresponding scale. This research revealed the existence of actual-preferred interactions for several cognitive and affective outcomes. In every case, the person-environment fit hypothesis was supported in that the relationship between a student outcome and an actual environment dimension was more positive in classes with a greater preference for that classroom environment dimension than for classes with a lesser preference for that dimension. For example, results for the ICEQ's Personalization scale and the outcome of attitude to the social implications of science is depicted graphically in Figure 2. This figure shows that student attitudes increased with increasing amounts of actual Personalization for classes preferring high levels of actual Personalization, but decreased with actual Personalization for classes preferring low levels of actual Personalization.

8.5 Practical Attempts to Improve Classroom Environments

Fraser (1981d) has proposed a simple method by which teachers can use information obtained from the ICEQ to guide attempts to improve their classrooms. The basic approach involves, first, using assessments of student perceptions of both their actual and preferred classroom environment to identify differences between the actual environment and that preferred by students and, second, implementing strategies aimed at reducing these differences. This approach can be illustrated by considering Figure 3, which depicts the profiles of mean scores obtained recently by a teacher who administered the ICEQ to one of his classes. After considering the pretest actual and pretest preferred profiles shown in this figure, the teacher decided to introduce an intervention of approximately one month's duration in an attempt to increase classroom Personalization and Participation. For example, strategies used to increase Personalization involved that teacher moving around the class more to mix with students. Finally, the teacher re-administered the ICEQ at the end of the intervention to see whether students were perceiving their classroom environment differently from before.

The dotted line in Figure 3 depicts the mean actual environment scores obtained at post-testing. A comparison of this profile with the pretest actual profile (the unbroken line) clearly shows that,

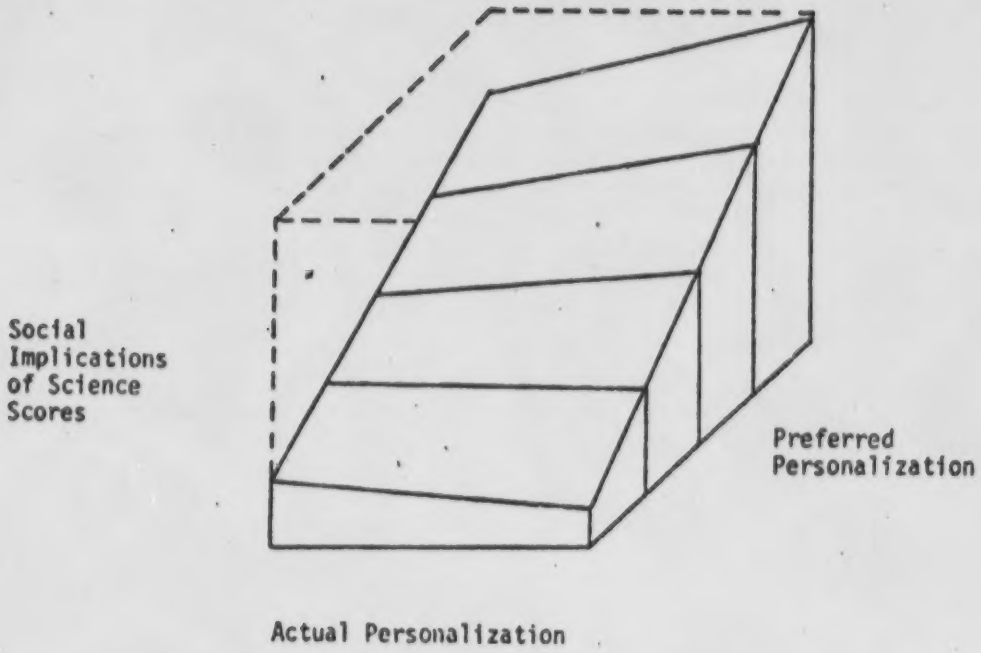


Figure 2. Actual-Preferred Interaction for Personalization

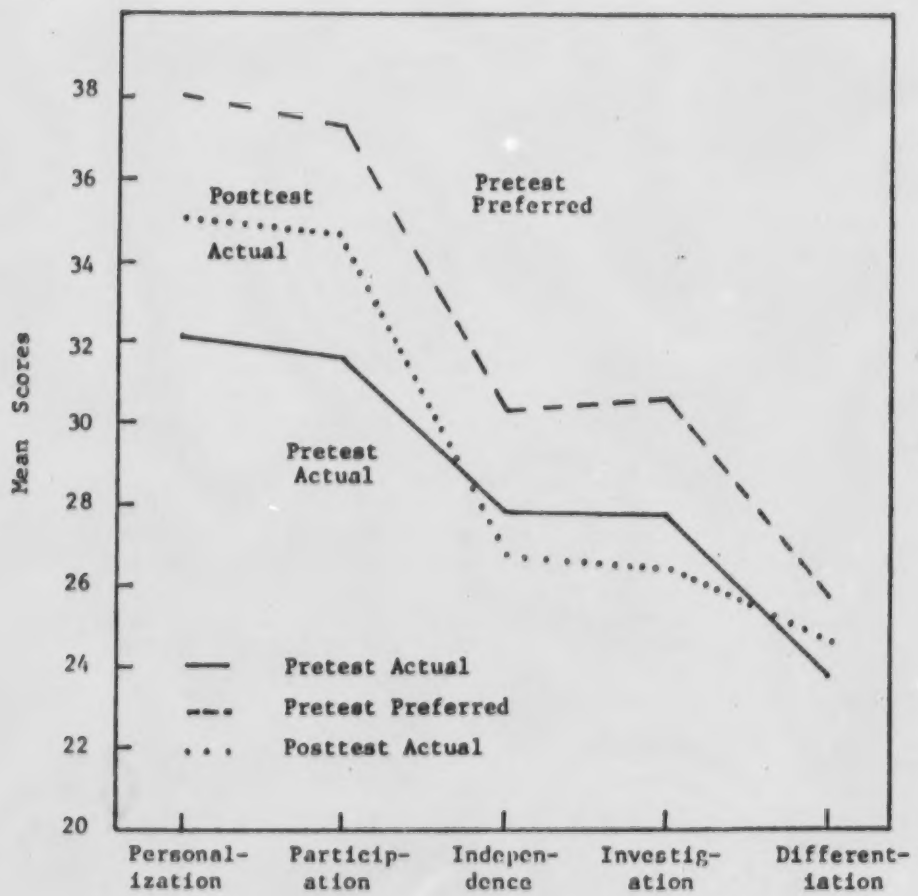


Figure 3. Profiles of Mean Actual and Preferred Scores

after the intervention, students perceived much more Personalization and Participation. These findings are especially noteworthy because the two dimensions on which appreciable changes were recorded were those, and only those, on which the teacher had attempted to promote change. Further details about applications of these methods for improving classroom environments are provided in Fraser, Seddon, and Eagleson (1982) and Fraser and Deer (in press).

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INDIVIDUALIZED CLASSROOM ENVIRONMENT QUESTIONNAIRE

ACTUAL LONG FORM

DIRECTIONS

This questionnaire contains statements about practices which could take place in this classroom. You will be asked how often each practice actually takes place.

There are no 'right' or 'wrong' answers. Your opinion is what is wanted.

Please do not write on this questionnaire. All answers should be given on the separate Answer Sheet.

Think about how well each statement describes what your actual classroom is like. Draw a circle around

1	if the practice actually takes place	ALMOST NEVER
2	if the practice actually takes place	SELDOM
3	if the practice actually takes place	SOMETIMES
4	if the practice actually takes place	OFTEN
5	if the practice actually takes place	VERY OFTEN

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it out and circle another.

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinion about all statements.

INDIVIDUALIZED CLASSROOM ENVIRONMENT QUESTIONNAIRE

PREFERRED LONG FORM

DIRECTIONS

This questionnaire contains statements about practices which could take place in this classroom. You will be asked how often you would like or prefer each practice to take place.

There are no 'right' or 'wrong' answers. Your opinion is what is wanted.

Please do not write on this questionnaire. All answers should be given on the separate Answer Sheet.

Think about how well each statement describes what your preferred classroom is like. Draw a circle around

1	if you'd prefer the practice to take place	ALMOST NEVER
2	if you'd prefer the practice to take place	SELDOM
3	if you'd prefer the practice to take place	SOMETIMES
4	if you'd prefer the practice to take place	OFTEN
5	if you'd prefer the practice to take place	VERY OFTEN

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it out and circle another.

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinion about all statements.

LONG FORM (ACTUAL OR PREFERRED)

1. The teacher considers students' feelings.
2. Students discuss their work in class.
3. The teacher decides where students sit.
4. Students find out the answers to questions from textbooks rather than from investigations.
5. Students work at their own speed.

6. The teacher talks with each student.
7. The teacher talks rather than listens.
8. Students choose their partners for group work.
9. Students draw conclusions from information.
10. All students in the class use the same textbooks.

11. The teacher takes a personal interest in each student.
12. Most students take part in discussions.
13. Students are told exactly how to do their work.
14. Students carry out investigations to test ideas.
15. All students in the class do the same work at the same time.

16. The teacher goes out of his/her way to help each student.
17. Students give their opinions during discussion.
18. Students are told how to behave in the classroom.
19. Students find out the answers to questions and problems from the teacher rather than from investigations.
20. Different students do different work.

21. The teacher is unfriendly to students.
22. The teacher lectures without students asking or answering questions.
23. The teacher decides when students are to be tested.
24. Students are asked to think about the evidence behind statements.
25. Different students use different tests.

26. The teacher helps each student who is having trouble with the work.
27. Students are asked questions.
28. Students are punished if they behave badly in class.
29. Students carry out investigations to answer questions coming from class discussions.
30. Students who have finished their work wait for the others to catch up.

31. The teacher remains at the front of the class rather than moving about and talking with students.
32. Students sit and listen to the teacher.
33. The teacher decides which students should work together.
34. Students explain the meaning of statements, diagrams and graphs.
35. Different students use different books, equipment and materials.

36. Students are encouraged to be considerate of other people's ideas and feelings.
37. Students' ideas and suggestions are used during classroom discussions.
38. Students are told what will happen if they break any rules.
39. Students carry out investigations to answer questions which puzzle them.
40. Students who work faster than others move on to the next topic.

41. The teacher tries to find out what each student wants to learn about.
42. Students ask the teacher questions.
43. Students who break the rules get into trouble.
44. Investigations are used to answer the teacher's questions.
45. The same teaching aid (e.g., blackboard or overhead projector) is used for all students in the class.

46. The teacher uses tests to find out where each student needs help.
47. There is classroom discussion.
48. The teacher decides how much movement and talk there should be in the classroom.
49. Students solve problems by obtaining information from the library.
50. All students are expected to do the same amount of work in the lesson.

INDIVIDUALIZED CLASSROOM ENVIRONMENT QUESTIONNAIRE

ACTUAL LONG FORM

A N S W E R S H E E T

NAME _____ SCHOOL _____ CLASS/GRADE _____

ALMOST NEVER
SELDOM
SOMETIMES
OFTEN
VERY OFTEN

Remember you are rating your actual classroom

1.	1 2 3 4 5	11.	1 2 3 4 5	21.	1 2 3 4 5	31.	1 2 3 4 5	41.	1 2 3 4 5	Pe	___
2.	1 2 3 4 5	12.	1 2 3 4 5	22.	1 2 3 4 5	32.	1 2 3 4 5	42.	1 2 3 4 5	Pa	___
3.	1 2 3 4 5	13.	1 2 3 4 5	23.	1 2 3 4 5	33.	1 2 3 4 5	43.	1 2 3 4 5	Id	___
4.	1 2 3 4 5	14.	1 2 3 4 5	24.	1 2 3 4 5	34.	1 2 3 4 5	44.	1 2 3 4 5	Iv	___
5.	1 2 3 4 5	15.	1 2 3 4 5	25.	1 2 3 4 5	35.	1 2 3 4 5	45.	1 2 3 4 5	D	___
6.	1 2 3 4 5	16.	1 2 3 4 5	26.	1 2 3 4 5	36.	1 2 3 4 5	46.	1 2 3 4 5	Pe	___
7.	1 2 3 4 5	17.	1 2 3 4 5	27.	1 2 3 4 5	37.	1 2 3 4 5	47.	1 2 3 4 5	Pa	___
8.	1 2 3 4 5	18.	1 2 3 4 5	28.	1 2 3 4 5	38.	1 2 3 4 5	48.	1 2 3 4 5	Id	___
9.	1 2 3 4 5	19.	1 2 3 4 5	29.	1 2 3 4 5	39.	1 2 3 4 5	49.	1 2 3 4 5	Iv	___
10.	1 2 3 4 5	20.	1 2 3 4 5	30.	1 2 3 4 5	40.	1 2 3 4 5	50.	1 2 3 4 5	D	___

Remember you are rating your actual classroom

Teacher Use Only

Pe ___ Pa ___ Id ___ Iv ___ D ___

DIRECTIONS FOR TEACHER FORMS OF ICEQ

Directions for Teacher Actual Form

This questionnaire is designed to obtain information about classroom practices which actually take place in your classroom.

Consider how often the teaching practice described in each of the following statements actually takes place in your classroom.

Indicate your response by circling the number on your Answer Sheet corresponding to your chosen response.

Directions for Teacher Preferred Form

This questionnaire is designed to obtain information about your preferences for different classroom practices.

Consider how often you would like or prefer the teaching practice described in each of the following statements to take place in your classroom.

Indicate your response by circling the number on your Answer Sheet corresponding to your chosen response.

LEARNING ENVIRONMENT INVENTORY

DIRECTIONS

The purpose of the questions in this booklet is to find out what your class is like. This is not a "test". You are asked to give your honest, frank opinions about the class which you are attending **now.**

Record your answer to each of the questions on the Response Sheet provided. Please make no marks on this booklet. Answer every question.

In answering each question, go through the following steps:

1. Read the statement carefully.

2. Think about how well the statement describes your class (the one you are now in).

3. Find the number on the Response Sheet that corresponds to the statement you are considering.

4. Indicate your answer by circling:

   SD if you **strongly disagree** with the statement,
   D if you **disagree** with the statement,
   A if you **agree** with the statement
   SA if you **strongly agree** with the statement.

5. If you change your mind about an answer, cross out the old answer and circle the new choice.

Be sure that the number on the Response Sheet corresponds to the number of the statement being answered in the booklet. Don't forget to record your name and other details on your Response Sheet.

1. Members of the class do favors for one another.
2. The class has students with many different interests.
3. Students who break the rule are penalized.
4. The pace of the class is rushed.
5. The books and equipment students need or want are easily available to them in the classroom.

6. There is constant bickering among class members.
7. The class knows exactly what it has to get done.
8. The better students' questions are more sympathetically answered than those of the average students.
9. The work of the class is difficult.
10. Failure of the class would mean little to individual members.

11. Class decisions tend to be made by all the students.
12. Certain students work only with their close friends.
13. The students enjoy their class work.
14. There are long periods during which the class does nothing.
15. Most students want their work to be better than their friends' work.

16. A student has the chance to get to know all other students in the class.
17. Interests vary greatly within the group.
18. The class has rules to guide its activities.
19. The class has plenty of time to cover the prescribed amount of work.
20. A good collection of books and magazines is available in the classroom for students to use.

21. Certain students have no respect for other students.
22. The objectives of the class are not clearly recognized.
23. Every member of the class enjoys the same privileges.
24. Students are constantly challenged.
25. Students don't care about the future of the class as a group.

26. Decisions affecting the class tend to be made democratically.
27. Students cooperate equally well with all class members.
28. Personal dissatisfaction with the class is too small to be a problem.
29. The work of the class is frequently interrupted when some students have nothing to do.
30. Students compete to see who can do the best work.

31. Members of the class are personal friends.
32. Some students are interested in completely different things than other students.
33. Student are asked to follow strict rules.
34. Students do not have to hurry to finish their work.
35. The students would be proud to show the classroom to a visitor.

36. There are tensions among certain groups of students that tend to interfere with class activities.
37. Students have little idea of what the class is attempting to accomplish.
38. The better students are granted special privileges.
39. The subject studied requires no particular aptitude on the part of the students.
40. Members of the class don't care what the class does.

41. Certain students have more influence on the class than others.
42. Some students refuse to mix with the rest of the class.
43. Many students are dissatisfied with much that the class does.
44. The class is well organized.
45. A few of the class members always try to do better than the others.

46. All students know each other very well.
47. Class members tend to pursue different kinds of problems.
48. The class is rather informal and few rules are imposed.
49. There is little time for day-dreaming.
50. The room is bright and comfortable.

51. Certain students in the class are responsible for petty quarrels.
52. The objectives of the class are specific.
53. Only the good students are given special projects.
54. Students in the class tend to find the work hard to do.
55. Students share a common concern for the success of the class.

56. Certain students impose their wishes on the whole class.
57. Some groups of students work together regardless of what the rest of the class is doing.
58. There is considerable dissatisfaction with the work of the class.
59. The class is disorganized.
60. Students feel left out unless they compete with their classmates.

61. Students are not in close enough contact to develop likes or dislikes for one another.
62. The class divides its efforts among several purposes.
63. There is a recognized right and wrong way of going about class activities.
64. The class members feel rushed to finish their work.
65. There are displays around the room.

66. Certain students don't like other students.
67. Each student knows the goals of the course.
68. The class is controlled by the actions of a few members who are favored.
69. The subject presentation is too elementary for many students.
70. Most students sincerely want the class to be a success.

71. Each member of the class has as much influence as any other member.
72. Certain groups of friends tend to sit together.
73. The members look forward to coming to class meetings.
74. The class is well organized and efficient.
75. Most students cooperate rather than compete with one another.

76. The class is made up of individuals who do not know each other well.
77. The class is working toward many different goals.
78. All classroom procedures are well-established.
79. The class has difficulty keeping up with its assigned work.
80. The classroom is too crowded.

81. Certain students are considered uncooperative.
82. The class realizes exactly how much work it is required to do.
83. Students who have past histories of being discipline problems are discriminated against.
84. Most students consider the subject-matter easy.
85. Failure of the class would mean nothing to most members.

86. What the class does is determined by all the students.
87. Most students cooperate equally with other class members.
88. After the class, the students have a sense of satisfaction.
89. Many class members are confused during class meetings.
90. There is much competition in the class.

91. Each student knows the other members of the class by their first names.
92. Different students vary a great deal regarding which aspects of the class they are interested in.
93. There is a set of rules for the students to follow.
94. The course material is covered quickly.
95. There is enough room for both individual and group work.

96. There is an undercurrent of feeling among students that tends to pull the class apart.
97. Each student in the class has a clear idea of the class goals.
98. Certain students are favored more than the rest.
99. Many students in the school would have difficulty doing the advanced work in the class.
100. Students have great concern for the progress of the class.

101. A few members of the class have much greater influence than the other members.
102. Certain students stick together in small groups.
103. Students are well-satisfied with the work of the class.
104. There is a great deal of confusion during class meetings.
105. Students seldom compete with one another.

LEARNING ENVIRONMENT INVENTORY RESPONSE SHEET

NAME _____ SCHOOL _____ CLASS/GRADE _____

Strongly Disagree Disagree Agree Strongly Agree

							Teacher Use Only
1. SD D A SA	16. SD D A SA	31. SD D A SA	46. SD D A SA	61. SD D A SA	76. SD D A SA	91. SD D A SA	Ch ____
2. SD D A SA	17. SD D A SA	32. SD D A SA	47. SD D A SA	62. SD D A SA	77. SD D A SA	92. SD D A SA	Dv ____
3. SD D A SA	18. SD D A SA	33. SD D A SA	48. SD D A SA	63. SD D A SA	78. SD D A SA	93. SD D A SA	Fo ____
4. SD D A SA	19. SD D A SA	34. SD D A SA	49. SD D A SA	64. SD D A SA	79. SD D A SA	94. SD D A SA	Sp ____
5. SD D A SA	20. SD D A SA	35. SD D A SA	50. SD D A SA	65. SD D A SA	80. SD D A SA	95. SD D A SA	ME ____
6. SD D A SA	21. SD D A SA	36. SD D A SA	51. SD D A SA	66. SD D A SA	81. SD D A SA	96. SD D A SA	Fr ____
7. SD D A SA	22. SD D A SA	37. SD D A SA	52. SD D A SA	67. SD D A SA	82. SD D A SA	97. SD D A SA	GD ____
8. SD D A SA	23. SD D A SA	38. SD D A SA	53. SD D A SA	68. SD D A SA	83. SD D A SA	98. SD D A SA	Fa ____
9. SD D A SA	24. SD D A SA	39. SD D A SA	54. SD D A SA	69. SD D A SA	84. SD D A SA	99. SD D A SA	Df ____
10. SD D A SA	25. SD D A SA	40. SD D A SA	55. SD D A SA	70. SD D A SA	85. SD D A SA	100. SD D A SA	A ____
11. SD D A SA	26. SD D A SA	41. SD D A SA	56. SD D A SA	71. SD D A SA	86. SD D A SA	101. SD D A SA	De ____
12. SD D A SA	27. SD D A SA	42. SD D A SA	57. SD D A SA	72. SD D A SA	87. SD D A SA	102. SD D A SA	Cl ____
13. SD D A SA	28. SD D A SA	43. SD D A SA	58. SD D A SA	73. SD D A SA	88. SD D A SA	103. SD D A SA	Sa ____
14. SD D A SA	29. SD D A SA	44. SD D A SA	59. SD D A SA	74. SD D A SA	89. SD D A SA	104. SD D A SA	Ds ____
15. SD D A SA	30. SD D A SA	45. SD D A SA	60. SD D A SA	75. SD D A SA	90. SD D A SA	105. SD D A SA	Cm ____

MY CLASS INVENTORY

NAME _____

SCHOOL _____ **CLASS** _____

DIRECTIONS

This is not a test. The questions are to find out what your class is like. Please answer all the questions.

Each sentence is meant to describe your class. If you agree with the sentence, circle **Yes**. If you don't agree with the sentence, circle **No**.

If you change your mind about an answer, cross out the old answer and then circle the new choice.

EXAMPLE	**Circle Your Answer**
1. Most children in the class are good friends	Yes No

If you think that most children in the class are good friends, circle the **Yes** like this:

1. Most children in the class are good friends.	(Yes) No

If you do **not** think that most children in the class are good friends, circle the **No** like this:

1. Most children in the class are good friends.	Yes (No)

Don't forget to write your name and other details on top of this page.

Teacher Use Only

S _____ F _____ CM _____ D _____ CH _____

START HERE	Circle Your Answer		Teacher Use Only
1. The pupils enjoy their schoolwork in my class.	Yes	No	+ _____ S
2. Children are always fighting with each other.	Yes	No	+ _____ F
3. In our class the work is hard to do.	Yes	No	+ _____ D
4. Some of the children in our class are mean.	Yes	No	+ _____ F
5. Most pupils are pleased with the class.	Yes	No	+ _____ S
6. Children often race to see who can finish first.	Yes	No	+ _____ CM
7. Most children can do their schoolwork without help.	Yes	No	- _____ D
8. Some pupils don't like the class.	Yes	No	- _____ S
9. Most children want their work to be better than their friend's work.	Yes	No	+ _____ CM
10. Many children in our class like to fight.	Yes	No	+ _____ F
11. Only the smart people can do the work in our class.	Yes	No	+ _____ D
12. In my class everybody is my friend.	Yes	No	+ _____ CH
13. Most of the children in my class enjoy school.	Yes	No	+ _____ S
14. Some pupils don't like other pupils.	Yes	No	+ _____ F
15. Some pupils feel bad when they do not do as well as the others.	Yes	No	+ _____ CM
16. Most children say the class is fun.	Yes	No	+ _____ S

	Circle Your Answer		Teacher Use Only
17. Some people in my class are not my friends.	Yes	No	- _____ CH
18. Children often find their work hard.	Yes	No	+ _____ D
19. Most children don't care who finishes first.	Yes	No	- _____ CM
20. Some children don't like other children.	Yes	No	+ _____ F
21. Some pupils are not happy in the class.	Yes	No	- _____ S
22. All of the children know each other well.	Yes	No	+ _____ CH
23. Only the smart pupils can do their work.	Yes	No	+ _____ D
24. Some pupils always try to do their work better than the others.	Yes	No	+ _____ CM
25. Children seem to like the class.	Yes	No	+ _____ S
26. Certain pupils always want to have their own way.	Yes	No	+ _____ F
27. All pupils in my class are close friends.	Yes	No	+ _____ CH
28. Many pupils in our class say that school is easy.	Yes	No	- _____ D
29. In our class some pupils always want to do best.	Yes	No	+ _____ CM
30. Some of the pupils don't like the class.	Yes	No	- _____ S
31. Children in our class fight a lot.	Yes	No	+ _____ F
32. All of the pupils in my class like one another.	Yes	No	+ _____ CH
33. Schoolwork is hard to do.	Yes	No	+ _____ D

	Circle Your Answer		Teacher Use Only
34. Certain pupils don't like what other pupils do.	Yes	No	+ _____ F
35. A few children in my class want to be first all of the time.	Yes	No	+ _____ CM
36. The class is fun.	Yes	No	+ _____ S
37. Most of the pupils in my class know how to do their work.	Yes	No	- _____ D
38. Children in our class like each other as friends.	Yes	No	+ _____ CH

CLASSROOM ENVIRONMENT SCALE

ACTUAL LONG FORM

DIRECTIONS

This questionnaire contains statements about practices which could take place in this classroom. You will be asked how well each statement describes what your class is actually like.

There are no 'right' or 'wrong' answers. Your opinion is what is wanted.

Please do not write on this questionnaire. All answers should be given on the separate Answer Sheet.

Think about how well each statement describes what your actual classroom is like. Draw a circle around

T if it is TRUE or MOSTLY TRUE that the practice actually takes place;

F if it is FALSE or MOSTLY FALSE that the practice actually takes place.

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it out and circle another.

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinion about all statements.

CES LONG FORM (ACTUAL OR PREFERRED)

1. Students put a lot of energy into what they do here.
2. Students in this class get to know each other really well.
3. This teacher spends very little time just talking with students.

4. Almost all class time is spent on the lesson for the day.
5. Students don't feel pressured to compete here.
6. This is a well-organized class.

7. There is a clear set of rules for students to follow.
8. There are very few rules to follow.
9. New ideas are always being tried out here.

10. Students daydream a lot in this class.
11. Students in this class aren't very interested in getting to know other students.
12. The teacher takes a personal interest in students.

13. Students are expected to stick to classwork in this class.
14. Students try hard to get the best grade.
15. Students are almost always quiet in this class.

16. Rules in this class seem to change a lot.
17. If students break a rule in this class, they are sure to get into trouble.
18. What students do in class is very different on different days.

19. Students are often "clock-watching" in this class.
20. A lot of friendships have been made in this class.
21. The teacher is more like a friend than an authority.

22. We often spend more time discussing outside student activities than class-related material.
23. Some students always try to see who can answer questions first.
24. Students fool around a lot in this class.

25. The teacher explains what will happen if a student breaks a rule.
26. The teacher is not very strict.
27. New and different ways of teaching are not tried very often in this class.

28. Most students in this class really pay attention to what the teacher is saying.
29. It's easy to get a group together for a project.
30. The teacher goes out of his/her way to help students.

31. Getting a certain amount of classwork done is very important in this class.
32. Students don't compete with each other here.
33. This class is often very noisy.

34. The teacher explains what the rules are.
35. Students can get into trouble with the teacher for talking when they're not supposed to.
36. The teacher likes students to try unusual projects.

37. Very few students take part in class discussions or activities.
38. Students enjoy working together on projects in this class.
39. Sometimes the teacher embarrasses students for not knowing the right answer.

40. Students don't do much work in this class.
41. Students' grades are lowered if they get homework in late. *
42. The teacher hardly ever has to tell students to get back in their seats.

43. The teacher makes a point of sticking to the rules he/she has made.
44. Students don't always have to stick to the rules in this class.
45. Students have very little to say about how class time is spent.

46. A lot of students "doodle" or pass notes.
47. Students enjoy helping each other with homework.
48. This teacher "talks down" to students.

49. We usually do as much as we set out to do.
50. Grades are not very important in this class.
51. The teacher often has to tell students to calm down.

52. Whether or not students can get away with something depends on how the teacher is feeling that day.
53. Students get into trouble if they're not in their seats when the class is supposed to start.
54. The teacher thinks up unusual projects for students to do.

55. Students sometimes present something they've worked on to the class.
56. Students don't have much of a chance to get to know each other in this class.
57. If students want to talk about something, this teacher will find time to do it.

58. If a student misses class for a couple of days, it takes some effort to catch up.
59. Students here don't care about what grades the other students are getting.
60. Assignments are usually clear so everyone knows what to do.

* Items 41, 63, and 86 were not included when calculating the statistics reported in section 6.3.

61. There are set ways of working on things.
62. It's easier to get into trouble here than in a lot of other classes.
63. Students are expected to follow set rules in doing their work.*

64. A lot of students seem to be only half awake during this class.
65. It takes a long time to get to know everybody by their first names in this class.
66. This teacher wants to know what students themselves want to learn about.

67. This teacher often takes time out from the lesson plan to talk about other things.
68. Students have to work for a good grade in this class.
69. This class hardly ever starts on time.

70. In the first few weeks the teacher explained the rules about what students could and could not do in this class.
71. The teacher will put up with a good deal.
72. Students can choose where they sit.

73. Students sometimes do extra work on their own in the class.
74. There are groups of students who don't get along in class.
75. This teacher does not trust students.

76. This class is more a social hour than a place to learn something.
77. Sometimes the class breaks up into groups to compete with each other.
78. Activities in this class are clearly and carefully planned.

79. Students aren't always sure if something is against the rules or not.
80. The teacher will kick a student out of class if he/she doesn't behave.
81. Students do the same kind of homework almost every day.

82. Students really enjoy this class.
83. Some students in this class don't like each other.
84. Students have to watch what they say in this class.

85. The teacher sticks to classwork and doesn't get sidetracked.
86. Students usually pass even if they don't do much. *
87. Students don't interrupt the teacher when he/she is talking.

88. The teacher is consistent in dealing with students who break the rules.
89. When the teacher makes a rule he/she means it.
90. In this class, students are allowed to make up their own projects.

* Items 41, 63, and 86 were not included when calculating the statistics reported in section 6.3.

CLASSROOM ENVIRONMENT SCALE

ACTUAL LONG FORM

ANSWER SHEET

NAME _____ SCHOOL _____ CLASS/GRADE _____

Remember you are rating your actual classroom

1. T F	10. T F	19. T F	28. T F	37. T F	46. T F	55. T F	64. T F	73. T F	82. T F
2. T F	11. T F	20. T F	29. T F	38. T F	47. T F	56. T F	65. T F	74. T F	83. T F
3. T F	12. T F	21. T F	30. T F	39. T F	48. T F	57. T F	66. T F	75. T F	84. T F
4. T F	13. T F	22. T F	31. T F	40. T F	49. T F	58. T F	67. T F	76. T F	85. T F
5. T F	14. T F	23. T F	32. T F	41. T F	50. T F	59. T F	68. T F	77. T F	86. T F
6. T F	15. T F	24. T F	33. T F	42. T F	51. T F	60. T F	69. T F	78. T F	87. T F
7. T F	16. T F	25. T F	34. T F	43. T F	52. T F	61. T F	70. T F	79. T F	88. T F
8. T F	17. T F	26. T F	35. T F	44. T F	53. T F	62. T F	71. T F	80. T F	89. T F
9. T F	18. T F	27. T F	36. T F	45. T F	54. T F	63. T F	72. T F	81. T F	90. T F

Teacher use only

Inv _____

Aff _____

TS _____

TO _____

Com _____

OO _____

RC _____

TC _____

Inn _____

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Remember you are rating your actual classroom

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INDIVIDUALIZED CLASSROOM ENVIRONMENT QUESTIONNAIRE

ACTUAL SHORT FORM

DIRECTIONS

This questionnaire contains statements about practices which could take place in this classroom. You will be asked how often each practice actually takes place.

There are no 'right' or 'wrong answers. Your opinion is what is wanted.

Think about how well each statement describes what your actual classroom is like. Draw a circle around

1	if the practice actually takes place	ALMOST NEVER
2	if the practice actually takes place	SELDOM
3	if the practice actually takes place	SOMETIMES
4	if the practice actually takes place	OFTEN
5	if the practice actually takes place	VERY OFTEN

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it out and circle another.

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinion about all statements.

Remember you are rating actual classroom practices	Almost Never	Seldom	Some-times	Often	Very Often	Teacher Use Only
1. The teacher talks with each student.	1	2	3	4	5	
2. Students give their opinions during discussions.	1	2	3	4	5	
3. The teacher decides where students sit.	1	2	3	4	5	R
4. Students find out the answers to questions from textbooks rather than from investigations.	1	2	3	4	5	R
5. Different students do different work.	1	2	3	4	5	
6. The teacher takes a personal interest in each student.	1	2	3	4	5	
7. The teacher lectures without students asking or answering questions.	1	2	3	4	5	R
8. Students choose their partners for group work.	1	2	3	4	5	
9. Students carry out investigations to test ideas.	1	2	3	4	5	
10. All students in the class do the same work at the same time.	1	2	3	4	5	R
11. The teacher is unfriendly to students.	1	2	3	4	5	R
12. Students' ideas and suggestions are used during classroom discussion.	1	2	3	4	5	
13. Students are told how to behave in the classroom.	1	2	3	4	5	R
14. Students carry out investigations to answer questions coming from class discussions.	1	2	3	4	5	
15. Different students use different books, equipment and materials.	1	2	3	4	5	
16. The teacher helps each student who is having trouble with the work.	1	2	3	4	5	
17. Students ask the teacher questions.	1	2	3	4	5	
18. The teacher decides which students should work together.	1	2	3	4	5	R
19. Students explain the meanings of statements, diagrams and graphs.	1	2	3	4	5	
20. Students who work faster than others move on to the next topic.	1	2	3	4	5	
21. The teacher considers students' feelings.	1	2	3	4	5	
22. There is classroom discussion.	1	2	3	4	5	
23. The teacher decides how much movement and talk there should be in the classroom.	1	2	3	4	5	R
24. Students carry out investigations to answer questions which puzzle them.	1	2	3	4	5	R
25. The same teaching aid (e.g., blackboard or overhead projector) is used for all students in the class.	1	2	3	4	5	
	Almost Never	Seldom	Some-times	Often	Very Often	

Pe____ Pa____ Id____ Iv____ D____

MY CLASS INVENTORY

STUDENT ACTUAL SHORT FORM

DIRECTIONS

This is not a test. The questions inside are to find out what your class is <u>actually like</u>.

Each sentence is meant to describe what your actual classroom is like. Draw a circle around

YES if you AGREE with the sentence

NO if you DON'T AGREE with the sentence

EXAMPLE

27. Most children in our class are good friends.

If you <u>agree</u> that most children in the class actually are good friends, circle the <u>Yes</u> like this:

(Yes) No

If you <u>don't agree</u> that most children in the class actually are good friends, circle the <u>No</u> like this:

Yes (No)

Please answer all questions. If you change your mind about an answer, just cross it out and circle the new answer.

Don't forget to write your name and other details on the top of the next page.

NAME _____ SCHOOL _____ CLASS _____

Remember you are describing your actual classroom	Circle Your Answer	For Teacher's Use	*Remember you are describing your actual classroom*	Circle Your Answer	For Teacher's Use
1. The pupils enjoy their schoolwork in my class.	Yes No		16. Some of the pupils don't like the class.	Yes No	R
2. Children are always fighting with each other.	Yes No		17. Certain pupils always want to have their own way.	Yes No	
3. Children often race to see who can finish first.	Yes No		18. Some pupils always try to do their work better than the others.	Yes No	
4. In our class the work is hard to do.	Yes No		19. Schoolwork is hard to do.	Yes No	
5. In my class everybody is my friend.	Yes No		20. All of the pupils in my class like one another.	Yes No	
6. Some pupils are not happy in class.	Yes No	R	21. The class is fun.	Yes No	
7. Some of the children in our class are mean.	Yes No		22. Children in our class fight a lot.	Yes No	
8. Most children want their work to be better than their friend's work.	Yes No		23. A few children in my class want to be first all of the time.	Yes No	
9. Most children can do their schoolwork without help.	Yes No	R	24. Most of the pupils in my class know how to do their work.	Yes No	R
10. Some people in my class are not my friends.	Yes No	R	25. Children in our class like each other as friends.	Yes No	
11. Children seem to like the class.	Yes No				
12. Many children in our class like to fight.	Yes No				
13. Some pupils feel bad when they don't do as well as the others.	Yes No				
14. Only the smart pupils can do their work.	Yes No				
15. All pupils in my class are close friends.	Yes No				

For Teacher's Use Only

S ____ F ____ Cm ____ D ____ Ch ____

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64.

Appendix Page 24

CLASSROOM ENVIRONMENT SCALE

STUDENT ACTUAL SHORT FORM

DIRECTIONS

This questionnaire contains statements about practices which could take place in this classroom. You will be asked how well each statement describes what your class is <u>actually like</u>.

There are no 'right' or 'wrong' answers. Your opinion is what is wanted.

Think about how well each statement describes what your actual classroom is like. Draw a circle around

True if it is TRUE or MOSTLY TRUE that the practice actually takes place;

False if it is FALSE or MOSTLY FALSE that the practice actually takes place.

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it out and circle another.

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinion about all statements.

NAME_____ SCHOOL_____ CLASS_____

Remember you are describing your actual classroom	Circle Your Answer	For Teacher's Use	Remember you are describing your actual classroom	Circle Your Answer	For Teacher Use
1. Students put a lot of energy into what they do here.	True False		13. Students are often "clockwatching" in this class.	True False	R
2. Students in this class get to know each other really well.	True False		14. A lot of friendships have been made in this class.	True False	
3. This teacher spends very little time just talking with students.	True False	R	15. The teacher is more like a friend than an authority.	True False	
4. We often spend more time discussing outside student activities than class-related material.	True False	R	16. Students don't do much work in this class.	True False	R
5. This is a well-organized class.	True False		17. Students fool around a lot in this class.	True False	R
6. There is a clear set of rules for students to follow.	True False		18. The teacher explains what will happen if a student breaks a rule.	True False	
7. Students daydream a lot in this class.	True False	R	19. Most students in this class really pay attention to what the teacher is saying.	True False	
8. Students in this class aren't very interested in getting to know other students.	True False	R	20. It's easy to get a group together for a project.	True False	
9. The teacher takes a personal interest in students.	True False		21. The teacher goes out of his/her way to help students.	True False	
10. Getting a certain amount of classwork done is very important in this class.	True False		22. This class is more a social hour than a place to learn something.	True False	R
11. Students are almost always quiet in this class.	True False		23. This class is often very noisy.	True False	R
12. Rules in this class seem to change a lot.	True False	R	24. The teacher explains what the rules are.	True False	

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For Teacher's Use Only

I___ A___ TS___ TO___ OO___ RC___

INDIVIDUALIZED CLASSROOM ENVIRONMENT QUESTIONNAIRE

ACTUAL LONG FORM

ANSWER SHEET

NAME Mary James SCHOOL _____ CLASS/GRADE _____

ALMOST NEVER / SELDOM / SOMETIMES / OFTEN / VERY OFTEN

Remember you are rating your actual classroom

																					Teacher Use Only
1.	1 2 3 (4) 5	4	11.	1 2 3 4 5	3	21.	(1) 2 3 4 5	5	31.	1 2 3 (4) 5	2	41.	(1) 2 3 4 5	1	Pe	15
2.	1 2 3 4 5		12.	1 2 3 4 5		22.	1 2 3 4 5		32.	1 2 3 4 5		42.	1 2 3 4 5		Pa	
3.	1 2 3 4 5		13.	1 2 3 4 5		23.	1 2 3 4 5		33.	1 2 3 4 5		43.	1 2 3 4 5		Id	
4.	1 2 3 4 5		14.	1 2 3 4 5		24.	1 2 3 4 5		34.	1 2 3 4 5		44.	1 2 3 4 5		Iv	
5.	1 2 3 (4) 5	4	15.	1 2 3 4 (5)	1	25.	(1) 2 3 4 5	1	35.	1 2 (3) 4 5	3	45.	1 (2) 3 4 5	4	D	13
6.	1 (2) 3 4 5	2	16.	(1) 2 3 4 5	1	26.	1 2 (3) 4 5	3	36.	1 (2) 3 (4) 5	3	46.	(1) 2 3 4 5	1	Pe	10
7.	1 2 3 4 5		17.	1 2 3 4 5		27.	1 2 3 4 5		37.	1 2 3 4 5		47.	1 2 3 4 5		Pa	
8.	1 2 3 4 5		18.	1 2 3 4 5		28.	1 2 3 4 5		38.	1 2 3 4 5		48.	1 2 3 4 5		Id	
9.	1 2 3 4 5		19.	1 2 3 4 5		29.	1 2 3 4 5		39.	1 2 3 4 5		49.	1 2 3 4 5		Iv	
10.	1 2 3 (4) 5	2	20.	1 2 3 4 (5)	5	30.	1 2 (3) 4 5	3	40.	1 2 3 4 (5)	5	50.	1 2 3 (4) 5	2	D	17

Remember you are rating your actual classroom

Pe 25 Pa ___ Id ___ Iv ___ D 30

LEARNING ENVIRONMENT INVENTORY RESPONSE SHEET

NAME _____ SCHOOL _____ CLASS/GRADE _____

| | | |

MY CLASS INVENTORY

NAME John Smith

SCHOOL _____ **CLASS** _____

DIRECTIONS

This is not a test. The questions are to find out what your class is like. Please answer all the questions.

Each sentence is meant to describe your class. If you agree with the sentence, circle **Yes**. If you don't agree with the sentence, circle **No**.

If you change your mind about an answer, cross out the old answer and then circle the new choice.

EXAMPLE	**Circle Your Answer**	
1. Most children in the class are good friends	Yes	No

If you think that most children in the class are good friends, circle the **Yes** like this:

1. Most children in the class are good friends.	(Yes)	No

If you do **not** think that most children in the class are good friends, circle the **No** like this:

1. Most children in the class are good friends.	Yes	(No)

Don't forget to write your name and other details on top of this page.

Teacher Use Only

S 17 F _____ CM _____ D 14 CH _____

START HERE	Circle Your Answer		Teacher Use Only
1. The pupils enjoy their schoolwork in my class.	(Yes)	No	+ 3 S
2. Children are always fighting with each other.	Yes	No	+ _____ F
3. In our class the work is hard to do.	Yes	(No)	+ 1 D
4. Some of the children in our class are mean.	Yes	No	+ _____ F
5. Most pupils are pleased with the class.	Yes	(No)	+ 1 S
6. Children often race to see who can finish first.	Yes	No	+ _____ CM
7. Most children can do their schoolwork without help.	(Yes)	No	- 1 D
8. Some pupils don't like the class.	(Yes)	(No)	- 2 S
9. Most children want their work to be better than their friend's work.	Yes	No	+ _____ CM
10. Many children in our class like to fight.	Yes	No	+ _____ F
11. Only the smart people can do the work in our class.	(Yes)	No	+ 3 D
12. In my class everybody is my friend.	Yes	No	+ _____ CH
13. Most of the children in my class enjoy school.	(Yes)	No	+ 3 S
14. Some pupils don't like other pupils.	Yes	No	+ _____ F
15. Some pupils feel bad when they do not do as well as the others.	Yes	No	+ _____ CM
16. Most children say the class is fun.	(Yes)	No	+ 3 S

	Circle Your Answer		Teacher Use Only
17. Some people in my class are not my friends.	Yes	No	- _____ CH
18. Children often find their work hard.	Yes	(No)	+ 1 D
19. Most children don't care who finishes first.	Yes	No	- _____ CM
20. Some children don't like other children.	Yes	No	+ _____ F
21. Some pupils are not happy in the class.	(Yes)	No	- 1 S
22. All of the children know each other well.	Yes	No	+ _____ CH
23. Only the smart pupils can do their work.	(Yes)	No	+ 3 D
24. Some pupils always try to do their work better than the others.	Yes	No	+ _____ CM
25. Children seem to like the class.	Yes	(No)	+ 1 S
26. Certain pupils always want to have their own way.	Yes	No	+ _____ F
27. All pupils in my class are close friends.	Yes	No	+ _____ CH
28. Many pupils in our class say that school is easy.	(Yes)	No	- 1 D
29. In our class some pupils always want to do best.	Yes	No	+ _____ CM
30. Some of the pupils don't like the class.	(Yes)	No	- 1 S
31. Children in our class fight a lot.	Yes	No	+ _____ F
32. All of the pupils in my class like one another.	Yes	No	+ _____ CH
33. Schoolwork is hard to do.	(Yes)	No	+ 3 D

	Circle Your Answer		Teacher Use Only
34. Certain pupils don't like what other pupils do.	Yes	No	+ _____ F
35. A few children in my class want to be first all of the time.	Yes	No	+ _____ CM
36. The class is fun.	Yes	No	+ 2 S
37. Most of the pupils in my class know how to do their work.	(Yes)	No	- 1 D
38. Children in our class like each other as friends.	Yes	No	+ _____ CH

CLASSROOM ENVIRONMENT SCALE

ACTUAL LONG FORM

ANSWER SHEET

NAME _____ SCHOOL _____ CLASS/GRADE _____

Remember you are rating your actual classroom

1. T (F) 1	10. T (F) 3	19. (T) F 1	28. T (F) 1	37. (T) F 1	46. T (F) 3	55. (T) F 3	64. (T) F 1	73. (T) F 3	82. T (F) 1
2. T F	11. T F	20. T F	29. T F	38. T F	47. T F	56. T F	65. T F	74. T F	83. T F
3. T F	12. T F	21. T F	30. T F	39. T F	48. T F	57. T F	66. T F	75. T F	84. T F
4. T F	13. T F	22. T F	31. T F	40. T F	49. T F	58. T F	67. T F	76. T F	85. T F
5. T F	14. T F	23. T F	32. T F	41. T F	50. T F	59. T F	68. T F	77. T F	86. T F
6. (T) F 3	15. (T) F 3	24. (T) (F) 2	33. T (F) 3	42. (T) F 3	51. T F 2	60. (T) F 3	69. (T) F 1	78. T (F) 1	87. (T) F 3
7. T F	16. T F	25. T F	34. T F	43. T F	52. T F	61. T F	70. T F	79. T F	88. T F
8. T F	17. T F	26. T F	35. T F	44. T F	53. T F	62. T F	71. T F	80. T F	89. T F
9. T F	18. T F	27. T F	36. T F	45. T F	54. T F	63. T F	72. T F	81. T F	90. T F

Remember you are rating your actual classroom

Teacher use only

Inv 18

Aff _____

TS _____

TO _____

Com _____

OO 24

RC _____

TC _____

Inn _____

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Remember you are rating preferred classroom practices	Almost Never	Seldom	Some-times	Often	Very Often	Teacher Use Only
1. The teacher talks with each student.	1	(2)	3	4	5	2
2. Students give their opinions during discussions.	1	2	3	4	5	
3. The teacher decides where students sit.	1	2	3	4	5	R
4. Students find out the answers to questions from textbooks rather than from investigations.	1	2	3	4	5	R
5. Different students do different work.	(1)	2	3	4	5	1
6. The teacher takes a personal interest in each student.	1	2	3	4	(5)	5
7. The teacher lectures without students asking or answering questions.	1	2	3	4	5	R
8. Students choose their partners for group work.	1	2	3	4	5	
9. Students carry out investigations to test ideas.	1	2	3	4	5	
10. All students in the class do the same work at the same time.	1	(2)	3	4	5	R 4
11. The teacher is unfriendly to students.	1	(2)	3	4	5	R 4
12. Students' ideas and suggestions are used during classroom discussion.	1	2	3	4	5	
13. Students are told how to behave in the classroom.	1	2	3	4	5	R
14. Students carry out investigations to answer questions coming from class discussions.	1	2	3	4	5	
15. Different students use different books, equipment and materials.	1	2	3	4	5	3
16. The teacher helps each student who is having trouble with the work.	1	2	(3)	4	5	3
17. Students ask the teacher questions.	1	2	3	4	5	
18. The teacher decides which students should work together.	1	2	3	4	5	R
19. Students explain the meanings of statements, diagrams and graphs.	1	2	3	4	5	
20. Students who work faster than others move on to the next topic.	1	(2)	3	4	(5)	3
21. The teacher considers students' feelings.	1	(2)	3	4	5	2
22. There is classroom discussion.	1	2	3	4	5	
23. The teacher decides how much movement and talk there should be in the classroom.	1	2	3	4	5	R
24. Students carry out investigations to answer questions which puzzle them.	1	2	3	4	5	
25. The same teaching aid (e.g., blackboard or overhead projector) is used for all students in the class.	1	2	3	4	(5)	R 1
	Almost Never	Seldom	Some-times	Often	Very Often	

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Pe 16 Pa ____ Id ____ Iv ____ D 12

NAME _____ SCHOOL _____ CLASS _____

Remember you are describing your actual classroom	Circle Your Answer	For Teacher's Use	*Remember you are describing your actual classroom*	Circle Your Answer	For Teacher's Use
1. The pupils enjoy their schoolwork in my class.	(Yes) No	3	16. Some of the pupils don't like the class.	Yes (No)	R 3
2. Children are always fighting with each other.	Yes No		17. Certain pupils always want to have their own way.	Yes No	
3. Children often race to see who can finish first.	Yes No		18. Some pupils always try to do their work better than the others.	Yes No	
4. In our class the work is hard to do.	Yes No		19. Schoolwork is hard to do.	Yes No	
5. In my class everybody is my friend.	Yes (No)	1	20. All of the pupils in my class like one another.	(Yes) No	3
6. Some pupils are not happy in class.	(Yes) No	R 1	21. The class is fun.	Yes No	2
7. Some of the children in our class are mean.	Yes No		22. Children in our class fight a lot.	Yes No	
8. Most children want their work to be better than their friend's work.	Yes No		23. A few children in my class want to be first all of the time.	Yes No	
9. Most children can do their schoolwork without help.	Yes No	R	24. Most of the pupils in my class know how to do their work.	Yes No	R
10. Some people in my class are not my friends.	Yes (No)	R 3	25. Children in our class like each other as friends.	(Yes) No	3
11. Children seem to like the class.	Yes (No)	1			
12. Many children in our class like to fight.	Yes No				
13. Some pupils feel bad when they don't do as well as the others.	Yes No				
14. Only the smart pupils can do their work.	Yes No				
15. All pupils in my class are close friends.	(Yes) (No)	2			

For Teacher's Use Only

S 10 F ___ Cm ___ D ___ Ch 12

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Appendix Page 35

NAME_____ SCHOOL_____ CLASS_____

Remember you are describing your actual classroom	Circle Your Answer	For Teacher's Use	Remember you are describing your actual classroom	Circle Your Answer	For Teacher Use
1. Students put a lot of energy into what they do here.	(True) False	3	13. Students are often "clockwatching" in this class.	True (False)	R 3
2. Students in this class get to know each other really well.	True False		14. A lot of friendships have been made in this class.	True False	
3. This teacher spends very little time just talking with students.	True False	R	15. The teacher is more like a friend than an authority.	True False	
4. We often spend more time discussing outside student activities than class-related material.	True False	R	16. Students don't do much work in this class.	True False	R
5. This is a well-organized class.	True False		17. Students fool around a lot in this class.	True False	R
6. There is a clear set of rules for students to follow.	True (False)	1	18. The teacher explains what will happen if a student breaks a rule.	True False	2
7. Students daydream a lot in this class.	(True) False	R 1	19. Most students in this class really pay attention to what the teacher is saying.	(True) (False)	2
8. Students in this class aren't very interested in getting to know other students.	True False	R	20. It's easy to get a group together for a project.	True False	
9. The teacher takes a personal interest in students.	True False		21. The teacher goes out of his/her way to help students.	True False	
10. Getting a certain amount of classwork done is very important in this class.	True False		22. This class is more a social hour than a place to learn something.	True False	R
11. Students are almost always quiet in this class.	True False		23. This class is often very noisy.	True False	R
12. Rules in this class seem to change a lot.	(True) False	R 1	24. The teacher explains what the rules are.	(True) False	3

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For Teacher's Use Only

I 9 A___ TS___ TO___ OO___ RC 7

"END OF DOCUMENT"